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SALUTE TO THE TREES

BY HENRY VAN DYKE

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Many a tree is found in the wood
And every tree for its use is good:
Some for the strength of the gnarled root,
Some for the sweetness of flower or fruit;
Some for shelter against the storm,
And some to keep the hearth-stone warm

Their roots are the nurses of rivers in birth
Their leaves are alive with the breath of
the earth;
They shelter the dwellings of man; and
they bend
O'er his grave with the look of a loving
friend.



Some for the roof, and some for the beam,
And some for a boat to breast the stream:-
In the wealth of the wood since the world
began

The trees have offered their gifts to man.

But the glory of trees is more than their
gifts:

'Tis a beautiful wonder of life that lifts
From a wrinkled seed in an earth-bound
clod,

A column, an arch in the temple of God,
A pillar of power, a dome of delight,
A shrine of song, and a joy of sight!

I have camped in the whispering forest of
pines,

I have slept in the shadow of olives and vines;
In the knees of an oak, at the foot of a palm
I have found good rest and slumber's balm.

And now, when the morning gilds the
boughs

Of the vaulted elm at the door of my house,
I open the window and make salute:

"God bless thy branches and feed thy root!
Thou hast lived before, live after me,
Thou ancient, friendly, faithful tree."

DEAR SIR: YOU HAVE MY CORDIAL CONSENT TO REPRINT THE POEM
IN "AMERICAN FORESTRY." HERE'S A VERY POOR PICTURE OF MY
GUARDIAN TREE. DO YOU WONDER I LOVE IT?

YOURS SINCERELY,

HENRY VAN DYKE.

"AVALON," MAY 17, 1921.

AMERICAN FORESTRY

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EDITORIAL

BUSINESS INVESTIGATES FORESTRY

ONE of the most distinctive steps in the forward advance of forestry in this country is the decision of the Chamber of Commerce of the United States, composed of the best and clearest thinking element of American business, to thoroughly investigate the question of a National Forest policy through the medium of a special committee appointed and delegated for this purpose.

This movement was initiated on January 25 last by the Board of Directors of the United States Chamber of Commerce, which voted to name a committee of wide representation, composed not only of men of attainment in fields closely associated with forestry, but business men and others prominent in varied walks of life.

This committee, before it makes its report, will have investigated the forestry situation at first hand by holding conferences in New York and Chicago, and by a close-hand survey of the forest regions, particularly on the West Coast.

The desire of the Chamber of Commerce is to have an absolutely impartial committee carefully investigate the forestry problems of this country, and after studying the situation from every angle decide whether and in what form a referendum shall be submitted to the Board of Directors. If a referendum is approved by the Board it will be submitted to about 2,000 member organizations for discussion and ballot.

The American Forestry Association has been honored by having two members of its Board of Directors selected to serve on this committee, and it awaits with great interest the result of the Committee's investigation and the decision both by the Board of Directors and the member organizations.

This is the first time American business, which participated so effectively and widely in the successful consummation of the Great War, has interested itself in forestry as one of the great problems of national welfare and economy.

PRIVATE FORESTRY AND TAXES

ONE of the industries of the United States dependent upon the forest is the manufacture of paper.

Although the paper industry of the country, whose product last year was valued at over the billion dollar mark, uses less than four per cent of the wood cut of the nation, its continued existence is absolutely dependent upon the maintenance of its supply of raw material.

It is for this reason that one of the most valiant advocates of the Snell-McCormick forestry measures is the American Paper and Pulp Association.

The importance of the forest problem to the printing, paper and allied industries is not appreciated by those who use the product of the forest in this form. The New York State supply of pulpwood timber, for instance, would not last the mills in that State five years, were they to be deprived of the supply which they receive from across the international boundary.

In the West are vast supplies of pulpwood timber, but the long rail haul makes them almost prohibitive to the paper mills of the eastern portion of the country. The development of paper mills in the Far West is a big future possibility; but even then the rail haul to eastern consumers would be so expensive that the competition of Eu-

ropean paper, made under conditions of cheap labor, subsidized industry, and for the present at least of impaired European currency, would become a serious problem for the industry.

It is absolutely imperative, therefore, that the waste lands of the east should begin, and begin now, to produce forests for future use. If the United States paper mills are to exist, therefore, in independence of foreign raw materials, the utilization of forest areas to produce the needed raw material is a paramount necessity.

And yet, only a few months ago, a prominent paper manufacturer, a believer in forestry, with a firm intention of using a big tract of forest land under the most approved forest regulations, found that the taxation laws alone of his State would force him to abandon this plan of keeping his land productive with forest crops. He found that the laws of his State imposed on such timberland a tax equivalent to taxing a crop of grain twice a week during the growing season. His hope of maintaining his forest land in forest growth by cutting only the mature timber was almost shattered. Had he been a man of ordinary persistence only, he would have abandoned hope entirely and proceeded to slash off every tree on his land, in order to avoid paying ruinous taxes.

And this situation is not confined to the paper industry. Those who wish to practice forestry find that the same public which calls the lumberman a devastator of the forest frequently forces him to cut his timber on account of excessive annual taxes.

Despite such handicaps, however, the paper industry has continued to practice, as well as to preach, forestry, and more and more paper companies are establishing forestry departments to maintain their supplies of raw material.

The paper industry, merely given here as an example of other American wood using industries, is on the horns of a dilemma. If its timber is cut, its future existence is imperiled; if it tries to conserve its timber, the State places a ruinous tax on what is not cut.

Without relief, without raw material, America must seriously consider the loss to foreign manufacturers of at least a portion of an industry whose product valued at over a billion dollars in 1920, gave employment to over 110,000 workers in more than 1,100 mills.

WHAT TEXAS NEEDS

TEXAS is striving to secure a law which provides its people with forests and lumber for their future needs. W. Goodrich Jones, president of the Texas Forestry Association, has issued an appeal to the people of the State in which he says:

"The State should compel the millmen to leave seed trees, as the land will naturally reforest if fires and hogs are kept from destroying the seedling growth. This more especially in the long leaf district. Deal justly with the millmen and buy their cut-over lands, at least 60 per cent of which are unfit for cultivation. A law should be passed allowing the State to condemn these lands at their actual values. Inaugurate a great State Forest as thirteen other States have done. Follow the plan of Louisiana with a severance or production tax on lumber. This at 12½c per 1,000 feet will furnish the State with a sufficient sum for a small beginning. This severance tax is in reality a consumer's tax, yet the added cost, \$2.50 for a

20,000-foot bill will make the burden on the small home builder negligible. This association introduced such a bill in the last Legislature, and it was defeated, thanks to the lumbermen. Just why the Texas lumbermen oppose this tax, which they will pay only as agents, and the Louisiana lumbermen favor it, is hard to understand. Probably the Texas lumbermen are opposed to a State grown and owned crop, raised for the benefit of all the people. The question now before the people of Texas is, shall a few hundred lumbermen rule and ruin Texas? Shall a small body of men block legislation, desired for the benefit of 5,000,000 people?"

What will be done is up to Governor Neff, and the State Legislature which assembles during July. The people of the State are aroused, they are demanding adequate forestry laws, and if the members of the Legislature truly represent the people who elected them they will give full consideration to the forestry bill.

A STATE FORESTRY PROGRAM

THE Oklahoma State Forestry Association has just been organized and it is interesting to note that, after a study of other state associations and the work which they have undertaken, Oklahoma has decided that the purpose and principles of its association are to promote economic forestry, farm forestry, park forestry, city forestry and tree planting in all their aspects in the State, such as:

Protection to woodlands and woodlots from fire, insects, etc.

Protection to shade trees along the public ways, in towns and cities.

Co-operation with lumber and woodworking industries, timber and woodlot owners.

Tree planting in western Oklahoma on farmsteads, along highways, in towns and cities.

Conservation of forests on areas not suited for agriculture and planting of trees on non-agricultural lands.

Conservation of fish and game, song and migratory birds.

Establishing national, state, county and city forests and parks.

Conservation of our native landscape; places and objects of historic interest and importance.

Procuring a state forestry policy and the necessary forestry and park legislation.

Supporting the greater United States forest policy and co-operating with the United States Forest Service.

This is a comprehensive program and one which will keep the new association busy—but it can be carried on successfully, and the State will benefit materially if it is.

PENNSYLVANIA'S GOOD EXAMPLE

THE United States has been set a good example by Pennsylvania, which has recently increased the salary of the Commissioner of Forestry from \$5,000 to \$8,000 a year, and that of the Deputy Commissioner from \$3,600 to \$6,000. Such salaries naturally not only attract good men to important positions, but keep them. Salaries paid by the government to the men of the United States Forest Service are, as in other government departments, entirely inadequate. As a result nearly one-third

of the trained foresters in the department seek and secure other jobs every year. Aside from the fact that the salaries are not fair payment for the work is the fact that the operation of the Forest Service is severely hampered by the loss of men trained to do its work and by the necessity of spending time to train other men, a goodly proportion of whom are certain to seek other work about the time they become really valuable to the Forest Service.

FOR THE GOOD OF THE FOREST

IF a forest is kept at its highest productive capacity, practically all other ends will be attained. In the various discussions leading to policy and legislation this basic fact is at times overlooked. For convenience separation is sometimes made into timber forests, protection forests and other broad classes; but if the prime end of maximum wood production is kept in mind the forest as such will be conserved and its greatest usefulness assured.

This thought is especially pertinent now when so much is heard about devastation, the reclaiming of denuded areas, and the perpetuation of forest growth on cut-over lands. It applies with equal force to the Adirondack and Catskill Forests of New York, where the protection of water supply and recreation are given as reasons for keeping state lands immune from cutting, and to the private holdings of the South and West, where public welfare requires the growing of successive timber crops on lands unsuited for agriculture.

The fire protection essential to any of these ends calls for concerted action by both public and private interests; but the responsibility for succeeding or related steps is not so clear. Between the theories of Federal and State control and the advocacy of voluntary or compulsory forest production on private land some middle ground will be found, involving, it is to be hoped, an adjustment and correlation of the several interests concerned.

The disturbing question is where the money is to come from now and during the growing period. In the ultimate settlement, the public will pay the bill, whether the growing trees are financed with Federal, State or private capital. It follows, then, that maximum wood production, of desirable kind in the shortest time, will yield the best return on the investment. For a long time investment must be made, not only as a future safeguard against timber scarcity, but in an economic sense in the use of capital for long periods.

There is plenty of timber for today; it is tomorrow's supply which is at stake. The underlying economic basis for all forestry agitation is the production of timber for posterity on the reasonable assumption that the nation will need wood for all time to come. As a scientific axiom it is equally apparent that if forests are protected and maintained for wood production they will at the same time serve the various other purposes for which their value is recognized.

In the more direct application of this, it is apparent that protection forests, such as are advocated, for example, in parts of the Adirondacks, need not be limited to the one use which would prevent the state from deriving a revenue from these areas. Any cutting should, of course, be done under very careful regulation and supervision, but starting with the present over-mature forests, which are making little if any net gain in wood volume because of slow growth and loss from decay, the first step would be the replacement of the old growth as far as feasible with better and more rapid growing trees. With this accomplished

the upper slopes of primary value for protection purposes would be managed so as to prevent denudation and erosion; but at the same time utilize the timber crop as it matures. Ample precedent for this is found in mountain forest areas in Europe.

On both public and private lands wherever located and where the protection feature is not of importance, the prime aim and object is to maintain a timber forest. The recreation and game features are incidental, but are attained as a matter of course. With fire protection, nature largely assumes the task of reforesting lands from which mature timber has been removed, and while in some regions the natural reproductive capacity may not create a new forest of the highest production nor of the most desirable kind, only a relatively small amount of help is needed to establish and maintain a productive forest. The greatest public interest—for the future—may call for the reforesting of the waste lands now entirely denuded or for forest planting where satisfactory natural seedling does not follow cutting, but while forest policies are in the making and public sentiment is being crystallized, the first and obvious step is to protect what we already have, encourage natural forest growth in every way possible, and gradually as funds and machinery become available increase the productivity of existing forest lands while gradually bringing new areas under forest cover.

In whatever is done in creating public sentiment and in passing legislation, it is important that facts not fallacies be promulgated. With all the good intentions in the world the word "devastation" has been made a publicity feature, yet without interpretation and explanation its meaning may be entirely misunderstood. If it is devastation to cut a tree or a forest of trees, it is not clear how a supply of lumber, pulpwood and other forest products is to be obtained, and these are the things the public now wants at low cost. If the good of the forest requires the replacement of the over-mature stands with faster growing and more desirable species, the removal and utilization of these old trees constitute devastation both to the eye and as regards their complete removal. When these terms are aimed at the lumbermen, as is usually the case, misconception is created if only one side of the story is told, and the broad and involved commercial factors ignored. Equally fallacious is the popular idea of solving the whole forest problem by planting two or three trees for every one which is cut. Forestry as an art and science must be applied with intelligence and in accordance with physical conditions which vary not only by regions, but almost property by property. The whole subject is too big and too involved to be dismissed or solved with a few slogans and scare headlines, or by legislation which does not fully take into account the complex factors of the situation. The starting point is protection, followed by rational steps for the highest productivity in the forests we have.

THE WHITE PINE

BY J. S. ILLICK

THE white pine stands out pre-eminently among the many forest trees native to eastern North America. Its discovery dates back to the day the Pilgrims landed on the rocky coast of New England. It was probably the first green thing that they saw as they approached the rough and rugged shores of the New World. Seeing

into the unbroken forest which then seemed endless and inexhaustible. In those days there seemed to be no end to the range of the white pine and the supply was thought to be so great that it would last forever.

Many years passed before the entire range of the white pine became known. But as the pioneers pushed forward they found that this valuable timber tree has limits of distribution. And now we know definitely that it is found only in the eastern part of the United States, extending northward as far as Newfoundland, and the northern shore of the gulf of the St. Lawrence, westward to Manitoba and Minnesota, and southward to Northern Illinois and Pennsylvania and along the Alleghenies to Georgia. The real extent of its wide range may be appreciated better by stating that it is native along a North and South line of 1,800 miles and an East and West line of 1,200 miles.

The merits of the white pine became so well known that at an early date it was planted beyond the limits of its natural range. In 1705 it was introduced into England



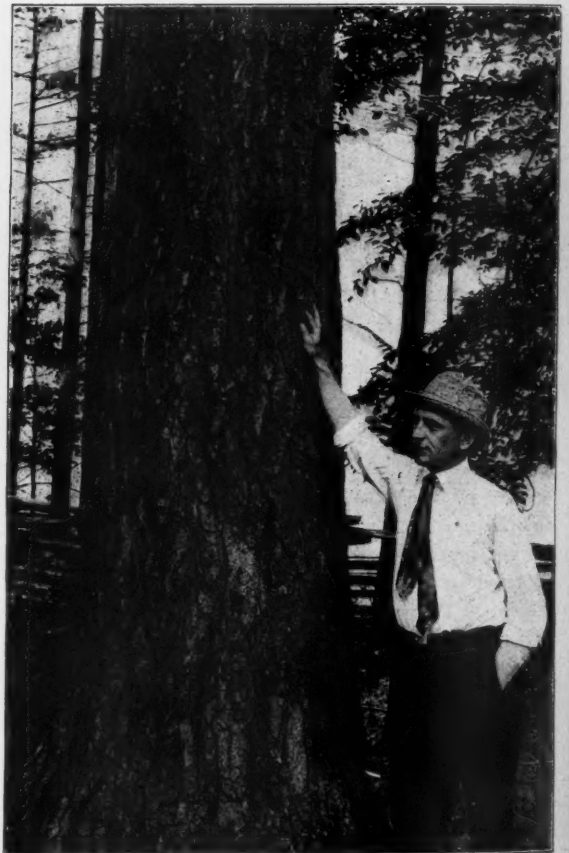
THIS IS THE FOREST PRIMEVAL

The original stands of White Pine in Northern Pennsylvania were among the densest and heaviest east of Idaho.

such beautiful and stately trees immediately upon landing must have given cheer and comfort to this little band of daring and tired sea voyagers.

It did not take the early settlers long to find out that this beautiful tree produces excellent wood and that it is adapted to a wide range of uses. As early as 1623 sawmills began manufacturing white pine lumber, and in 1635 a cargo was shipped to England from Massachusetts. It was not long until the demand for white pine lumber became so strong at home and abroad that sawmills sprang up everywhere.

The lumbermen of colonial days had many hardships to endure, and it must have been comforting to them to find that the white pine stands became denser and the quality of the wood better the farther they penetrated



THE BARK OF A VETERAN WHITE PINE

This large trunk shows clearly the characteristics of the bark of the species, roughened by deep up and down fissures. It is dark gray in color.

by Lord Weymouth and shortly thereafter it was planted in Germany. In 1794 a Hessian forester visited America. He was impressed with the white pine, and took back with him a supply of seed sufficient to reforest 15 acres of woodland near Trippstadt, in Bavaria. The experiment was a success, and in 1910, when the writer visited the



A BIG WHITE PINE

Only a few of the mighty monarchs of the original forest remain to tell of a former glory.

trees, they were all thrifty in appearance and some of them had attained a height of more than 100 feet, and a diameter of 25 to 35 inches.

These immigrant white pine trees began to bear fertile seeds at the age of 25 years. In their prime they produced a large quantity of select seed. All the seed produced by these trees was collected and sowed in forest tree nurseries for the purpose of reforestation. The most interesting part of this commendable accomplishment is the fact that some of the seedlings, raised from these American white pine trees grown in Germany, were brought back to America and used to reforest some of our own devastated forest land. All this happened in the early days of American forestry, before the forest tree nurseries of the United States were developed far enough to supply our own needs.

An excellent stand of white pine is also found in the Municipal Forest of Frankfort, located near Isenburg, in

Germany. Two-year-old seedlings were planted in 1855, and now the stand has 295 trees per acre averaging 85 feet in height and about 15 inches in diameter. This is one of the most attractive stands of white pine in the world. It is the pride of the forester in charge of the City Forest, and is visited annually by thousands of tourists and many foresters. In the Municipal Forest of Heidelberg, white pine covers more than 140 acres. There are at least 150,000 trees growing in this small City Forest, and throughout continental Europe many million trees have been planted. In fact, it has been planted so extensively that it is now regarded as a naturalized member of their forests.

Many good things have been said about the white pine, and I am wondering if we really know this excellent tree. I am sure no other native forest tree is known more widely or has a longer list of friends; but lest there may be one person among us who may not be acquainted with this princely pine, its striking distinguishing characteristics will be set forth.

The white pine can be identified without much effort. Most of its features are markedly distinctive from all other forest trees. It is the only evergreen tree native to eastern North America that has its soft, flexible, and bluish-green needles arranged in clusters of five. If one examines the needles of an eastern evergreen tree and



SECTION OF WHITE PINE BEDS IN TREE NURSERY AT CLEARFIELD, PENNSYLVANIA

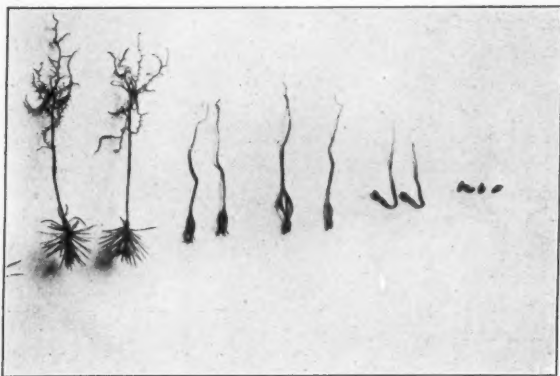
The nurseries operated by the Pennsylvania Department of Forestry have been yielding annually as many as three million white pine seedlings.

finds that they occur in bundles of five and are surrounded at the base with a thin paper-like wrapper the tree is unquestionably white pine.

But one should not be satisfied to identify any tree on the basis of a single characteristic, however striking it may be. A number of distinctive features should always be used.

Another helpful distinguishing characteristic is the arrangement of the lateral branches. They appear in hori-

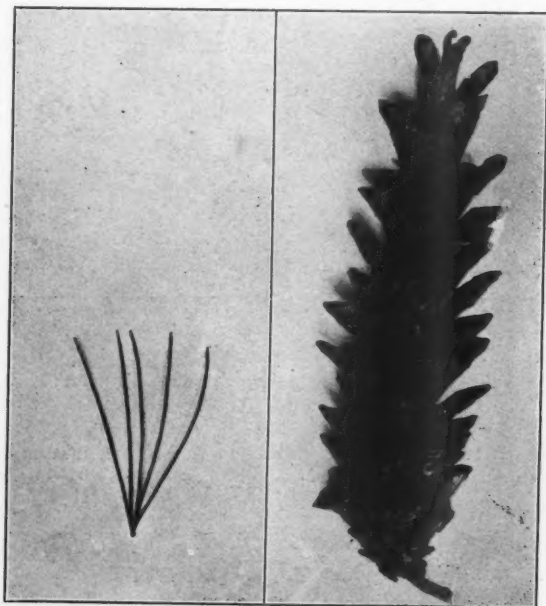
zontal layers or whorls, that is, from three to seven or more side branches originate about the main stem at a given point and the space between successive layers is free from lateral branches. After the lateral branches fall off they leave distinct circles of branch traces at rather regular intervals along the trunk, which may remain evident for 25 years or more.



FIVE STEPS IN THE DEVELOPMENT OF A WHITE PINE SEEDLING

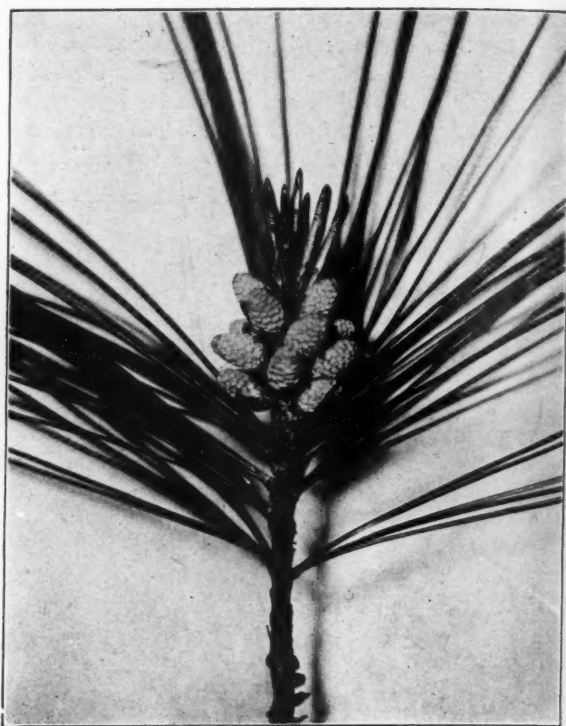
From the seed to a one-year-old seedling. The seed coat may persist for several weeks after the tiny seedling pushes its way through the soil. A one-year-old seedling is only about one and one-half inches high and bears solitary needles. The needles do not appear in clusters of five until the second year.

The fruit of the white pine is a cone. When full grown it is from 5 to 10 inches long and covered with numerous thin flat scales. At the base of each scale two winged seeds are produced. The seeds are brown in color and small in size. It takes from 25,000 to 35,000 separate seeds to make a pound of clean seed, which is



A CLUSTER OF NEEDLES AND A CONE

White pine needles come in bunches of five and the cone is very beautiful, being when full grown from 5 to 10 inches in length.



DISTINGUISHING CHARACTERISTICS ARE HERE VERY PLAINLY SHOWN

A twig of white Pine bearing immature and mature leaves in bundles of 5 each, and a cluster of staminate flowers.

sufficient to sow 100 square feet of nursery bed, and if all goes well each nursery bed will produce from 10,000 to 15,000 two-year-old seedlings.

The bark is also a helpful means of identification. On the twigs it is smooth and greenish-brown; but on the older branches it is light to dark brown and scaly. On large trunks the bark is dark gray and roughened by deep fissures which extend up and down along the stem.

The wood is soft, straight-grained, and works easily. It weighs about 25 pounds per cubic foot, and was formerly used for a wider range of purposes than any other American wood. White pine wood has stood out especially as a building material. In the early days only the choicest material was used. Houses may be found today which were built years ago and covered with weatherboards in which not a single knot can be found in the whole house. Only the best was used then. Now we are obliged to take any grade and pay a high price for it.

The form of the white pine varies with its environment. If grown in dense stands such as prevailed in the original forests, the stems will be straight and taper gradually, and the lateral branches are found only in the shallow crown, often a hundred or more feet above the ground. But if the white pine grows in the open with plenty of space and sunlight on all sides, the crown will resemble a pyramid in form and extend almost to the ground. The lateral branches will persist for many years unless they



A THRIFTY STAND OF PLANTED WHITE PINE

Trees are 48 years old. Circles of branch scars are clearly shown. The distance between two scars is one year's growth. This stand is in the City Forest of Frankfurt, Germany.

are shaded out by neighboring trees. In this respect it is different from many of the other eastern pines. In a field near Mont Alto, Franklin county, Pennsylvania, stand two pine trees which contrast strongly with each other. The one is a white pine and the other is a short-leaf pine. From all the available evidence these two trees grew up in the same environment, and yet they have few features in common. The white pine has a pyramid-like crown with the lateral branches persisting almost to the ground, and a strong-tapering stem, while the short-leaf pine has a shallow round-topped crown and a long, clean, and slightly tapering stem. These two trees, standing only about 50 feet apart, offer the best object lesson in tree heredity that ever came to the attention of the writer. To have developed forms so different from each other in the same environment and at the same age can hardly be attributed to anything other than the fact that each has inherited its own distinctive form. This belief is supported by many recent scientific experiments which have proven that tree characteristics can be handed down through the seeds from one tree generation to another.

For many years white pine was the nucleus of the American lumber in-

dustry. Even as late as 1890 almost one-third of the annual lumber cut of the entire country was white pine. But at the rate it was being cut there was no hope that it could retain a frontline place, for the supply was too small. Today only a few remnant patches of original white pine remain; that is, the kind that the white man found when he began to exploit the forests of the New World. Even in Pennsylvania, where once stood some of the best white pine in the world, only a few scattered patches remain. These veteran trees are becoming so rare that pilgrimages are now taken annually to the remote places where a few of these forest monarchs still stand.

But there is a ray of hope for the white pine. It is unquestionably the most important forest tree in eastern North America, and probably in the world. It adapts itself to a great variety of soils, grows rapidly, produces valuable wood, and is attractive in appearance throughout the entire year. Because of these merits special efforts are being put forth to bring it

back again to its former position of importance.

Throughout the range of white pine there occurs many natural young stands of it. Special efforts are being put forth by many states and private owners to protect these



THE OLDEST PLANTATION OF WHITE PINE ON THE STATE FORESTS OF PENNSYLVANIA

It contains more than 2,000 trees, and complete growth records are kept of every tree on a selected sample plot containing more than 200 trees. Each tree is numbered and the white horizontal line below the number of each tree indicates the breast-high mark, where diameter measurements are always taken.

promising young stands against forest fires, injurious insects and destructive fungi. Much good work has already been done along these lines, and as a stronger sentiment develops in favor of real constructive forestry work, the white pine will gradually work its way back to the place it deserves, and make our barren hillsides look green, and then there will flow forth from them a continuous supply of much needed wood.

During the past two decades the practice of forest tree planting has established itself in America. Twenty years ago very few forest trees were being planted. Now they are being set out by the millions, and many thanks are due the good judgment of the foresters who have placed white pine at the head of the list. The growth and the ultimate significance of the practice of forest tree planting may be appreciated by studying the following table which gives the number of white pine trees planted on the State Forests of Pennsylvania from 1902 to 1919 inclusive:

Year.	Number of Forest Trees Planted on State Forests of Pennsylvania.
1902.....	5,000
1903.....	1,600
1904.....	3,000
1905.....	25,000
1906.....	85,700
1907.....	25,000
1908.....	70,800
1909.....	588,375
1910.....	777,289
1911.....	1,407,304
1912.....	1,335,247
1913.....	2,536,595
1914.....	2,494,252
1915.....	2,173,235
1916.....	3,343,400
1917.....	1,602,560
1918.....	2,935,250
1919.....	1,262,365
Total.....	20,671,972



A WHITE PINE STUMP FENCE

Many stretches of such fence are found throughout the country. Though this may be considered by some as the extreme in utilization it goes to prove that every bit of a white pine is good.

At first it may seem incredible that more than 20 million white pine trees have been planted in 18 years on the State Forests of Pennsylvania; that is, an average of more than one million per year. This does not represent the total planting for other kinds of trees have also been set out on many idle acres of State Forest land. In addition to the State Forest planting at least 10 million white pine trees have been planted by private owners

of forest land in Pennsylvania. Most of the planting stock was supplied by the Pennsylvania Department of Forestry. And in other states, particularly New York, Massachusetts and Connecticut, many million young white pine trees have been planted on barren waste land.

Many of the trees comprising the older plantations have already reached a size of 20 to 30 feet in height. The growth during the first few years is rather slow, but each successive year it becomes greater until the annual height growth reaches two to three feet, and in exceptional cases it may be as high as four feet in a single season. The following table will give the height growth of an ordinary plantation during the first 10 years after its establishment:

Year.	Age of Trees (years)	Current Growth (inches)	Total Height (inches)
1909.....	3.....	2.5.....	5.0
1910.....	4.....	6.3.....	11.3
1911.....	5.....	7.7.....	19.0
1912.....	6.....	9.1.....	28.1
1913.....	7.....	10.4.....	38.5
1914.....	8.....	15.4.....	53.9
1915.....	9.....	22.1.....	76.0
1916.....	10.....	27.3.....	103.3
1917.....	11.....	30.2.....	133.5
1918.....	12.....	33.1.....	166.6

Many of these planted baby trees were set out by school boys and girls. The Boy Scouts have taken an active part in the tree planting work wherever it has been called to their attention. Tree planting by boys and girls should be encouraged everywhere. It is a pleasant pastime, and also a useful and helpful practice.

REFORESTATION THAT WILL PAY DIVIDENDS

BY ARTHUR NEWTON PACK

THERE is hardly a newspaper or magazine in the country that has not at some time or other in the last year or so proclaimed the rapid depletion of our timber resources. We are told that if the present rate of consumption continues without the creation, through reforestation, of vast new sources of supply, within the lifetime of a child born today we will have only great treeless wastes to contemplate, the lumber and paper industries

One of the largest manufacturers of wood products announces that it has now *permanently* established itself in Louisiana. It will never again cut out the last of its timber and pull up stakes in the old way to follow the ever-receding forest, because through reforestation its own supply is to be made inexhaustible. In common with most other lumber manufacturers, the management of this company once looked askance on the idea of reforest-



LOCATION OF THE REFORESTATION PROJECT

This is a view of Bogalusa, Louisiana, showing in the distance the plant of the Great Southern Lumber Company, which is a pioneer in the application of reforestation by lumber companies, and expects to grow enough trees to supply its needs forever.

will be dead, and wood the most high priced of all building materials. The remedy is there; but who is willing to apply it?

Federal and State governments can and will expend great sums of money for example and encouragement; private individuals may undertake smaller projects; but every year our wood-using industries continue to denude an acreage about as large as the State of Massachusetts, and the situation can be but little improved. Ultimately it must be those great industries themselves, which, with an awakened consciousness of the emergency confronting them, and with the cooperation of public opinion as well as governmental agencies, will meet the issue.

Their hope was to build up, co-incident with the lumber industry, a great agricultural center based on the cut-over lands, which, when the mill had done its work, was to give profitable occupation to all. After several years of experimenting, however, it was evident that the returns were hardly sufficient to form the basis of industrial permanency. It was then that the natural re-growth of certain cut-over sections began to direct their attention to the idea of reforestation, and the new policy was the result. Instead of the usual group of ugly unpainted shacks, this company has built a handsome town, each building a model of its kind. Y. M. C. A., Y. W. C. A., hospital, hotel, offices, parks, schools and homes are



THE RESEEDING CREW AT WORK

By fostering instead of hindering natural propagation the company plans to eliminate the necessity of artificial reseeding.



GETTING THE SEED

The pine cones are dried in the manner shown in the photograph in order to obtain the seed. The company now has about 1300 pounds of seed on hand.

hardly to be equalled in a city of a hundred thousand people. It all represents faith in just one idea—that sane and practical reforestation can be made to pay dividends.

The problem of growing timber is perhaps more simple in the south than in certain other parts of the country. Given a chance Nature seems to generously attend to the re-seeding, and the loblolly, or old field pine, indigenous to that section, is one of the most rapid growing of all species. Although taking about five times as long to reach maturity, the long leaf pine, which for many years has been the standard wood for construction purposes throughout most of the United States, also reproduces freely.

The chief obstacle has been fire. In this well-settled community the careless match has been responsible for the destruction of many millions of seedlings every year. Even people who profess to understand the principles of forestry have claimed that a burning over of the land immediately after the timber is cut is one of the best means of promoting reforestation. For the pine of the south this is emphatically untrue, and although a few seedlings may survive the first burning, the majority are destroyed. The dangerous season in southern Louisiana is during the winter months, for there is no snowfall, and as soon as the first frost nips the long grass which everywhere covers the forest floor, it becomes a most inflammable tinder ready to flare up at the slightest spark. Plowed fire lanes dividing the tracts into the smallest

possible units within a reasonable limit of expense, have been used with success, and this company is to supplement this with watch-towers, where a man will be continually on duty.

The present town site of Bogalusa, Louisiana, was entirely cut over about 14 years ago. Where repeated grass fires have burned through there is practically no reproduction, but in many places naturally protected a splendid second growth of loblolly may be observed. For one such group the Forestry Department has carefully counted, measured and numbered every tree, and keeps a record of annual growth as a check for its own estimates. Last year a few of these trees were cut and manufactured into paper pulp as a proof of the practicability of the reforestation idea. Doubtless it would have paid better to have left these trees four or five years longer, but in this case the company merely desired to illustrate its contention.

Many natives of the long-leaf pine country claim that an area timbered with long-leaf will not come up a second time to the same species, but only to the short-leaf varieties. The Louisiana State Forestry Department some time ago demonstrated the falsity of this theory and explained the reason. Every settler in that country, be he white or black, keeps a varying number of hogs. The chances are he does not know himself how many, for the State is without a stock law and stock of all kinds are allowed to range about through the unfenced woods and cut-over lands. The long-leaf seedling devotes the first year or so of its life chiefly to growing roots, and the long tap-root with its heavy sugar content is a favorite tit-bit for these range hogs. A few hungry hogs will pretty effectually kill the one or two year old long-leaf stand on a



CLOSE UTILIZATION

The up-to-date lumberman economizes by having his lumber cut as close to the ground as possible. This is real forest conservation.

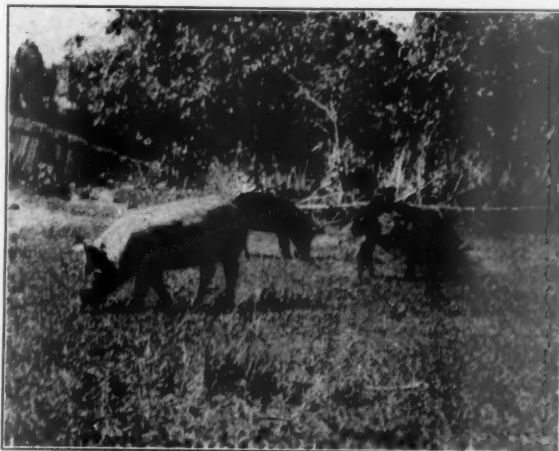
tremendous acreage, in order to eat the sweet root. They will not harm short-leaf seedlings, because they do not like its roots.

The company has carefully fenced in against the hogs nearly five thousand acres of land, upon most of which the 1920 seed-fall is growing, this being the first large scale work of the kind ever attempted in this country. Fencing is an expensive operation, but the company has been willing to experiment along this line because of its faith in the potential value of the investment.

In spite of these protective measures it is realized that no new development can successfully take place until a large majority of the people are educated to appreciate its value. The company's department of forestry has made it a principal part of its work to conduct a thorough and continuous publicity for the education of the local population to the importance and value of a permanent timber supply. This has been carried on in an excellent common sense way — not only through the local papers, posted signs and special appeals, but through interesting exhibits of forest products at the country fairs. According to present plans the company will have a forest values display at every fair

in the State this year. Last year people crowded to these forestry booths to see the exhibits and search for their friends among the photographs of farmers who had already taken steps to plant or conserve the young timber growth on their land. In addition, the company last year advertised widely that it would purchase at \$5.00 a cord

such wood as the farmers wished to cut from their own lands and deliver at the railroad. Although the company could have procured from its own logging and sawmill waste sufficient raw material for its pulp mill, five thousand additional cords were thus purchased for the sake of educating the people to the value of wood. It is possible that much of the success which will attend this educational work will be due to the special efforts of the Chief Forester, for he himself was born and bred not far from the present town and the personal equation is always important in obtaining good will. Where it appears that, due to the interference of man's agency, the cut-over land has not been properly re-seeded, the company has experimented with various methods of sowing pine seed. The best way has not yet been determined. On 2,000 acres of land long-leaf pine seed was broadcasted last fall, but



FOREST ENEMIES

These hogs feed on the sweet roots of young second growth long-leaf pine and have to be kept off land where re-growth is desired.

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FROM THIS WILL GROW NEW FORESTS

Bags full of long-leaf yellow pine seed gathered by the Great Southern Lumber Company and being used in replanting cut-over areas where man's devastation has made it impossible for Nature to provide.

without very satisfactory results. About a pound of seed was scattered over each acre; but Nature's own methods are more lavish than man can afford, and it is probable that as the seed was scattered at a time when other food for the birds was scarce, the feathered flock which followed the sowers probably profited most by the operation. On the other hand, 800 acres of fenced land were roughly plowed and then about six-tenths of a pound per acre of Long-leaf, Loblolly and Slash Pine seed was drilled into the soil. The results here are already evident, and the ground is well covered with fine little seedling trees of these species. Fair results have also been obtained where 34,000 Loblolly seedlings found in the woods under the mature trees were transplanted. These seedlings could not have lived under the shade of the dense tops; but about 70 per cent are now doing well on a 55-acre cut-over area. When it is considered that 50 mature trees to an acre constitute a fair stand, it is evident that even if over half the remainder die the experiment will still have proved a success. The labor of transplanting represented a cost of only about six mills per seedling tree. It is interesting to note that after advertising to buy pine seed at one to two dollars a pound without success, the company subsequently was able to collect its own seed from the heavy 1920 crop at a cost as low as fifty cents a pound.

It should be kept in mind that all these methods of artificial reforestation have been purely experimental, and the most practical ideas will be evolved through practice. The keynote of the whole plan is not to assist Nature, but so far as possible to remove the obstacles which man has placed in her way. The Forestry Department operates well ahead of the logging crew, plowing out its fire lines and watching to protect from enemies the millions of tiny seedlings in the soil. When the logging crews begin work, to be sure, more than half of these seedlings will be destroyed by the skidding of the logs, etc.; but Nature has provided for that through her lavishness. In case the seedlings already in the soil should not be sufficient, the forester also selects groups of young healthy seed trees, which he marks with a painted circle. These the logging foreman must protect from all bruising or injury. The seed tree idea is everywhere in its infancy, and most attempts along this line have frankly failed, because the forest tree is a community dweller. When left alone by the cutting of its neighbors it usually has but a short life, blown down by the first strong wind, or succumbing to the attack of some insect which has multiplied in the dead brush left behind by the loggers. The company thus tried leaving single selected seed trees without much success. The group idea is a comparatively new one, and only the next year or two can testify as to the success of the experiment.

The most expert advice from both State and National

sources has been obtained in the formulation of reforestation policies. As an example of thoroughgoing faith in the idea the company is now paying for an exhaustive soil analysis and survey of their land holdings, to determine just what portions are more chiefly suitable for agriculture and what land can best be reforested. The results of these earlier reforestation experiments will then be applied to the many thousands of additional acres so selected, and a really perpetual timber supply will be obtained. The re-growth of the town site has already demonstrated the practicability of this as far as the short-leaf species go; but the plan looks ahead even as far as 40 years, when the first replanted long-leaf pine will reach a merchantable size—a plan so far-reaching and revolutionary that it may in time succeed in changing the entire character of the lumber industry. It certainly seems worth a try.

Although the problem of reforestation may be generally regarded as the foundation of forestry, it is far from being the only question with which forestry deals. Effective utilization of timber is at least equally important. The ordinary lumber manufacturer uses only about 50 per cent of the tree. This company, with its subsidiary paper and by-product plants, leaves behind in the woods nothing but very low stumps and the smaller twigs and branches. Top and limbs, amounting to about a cord to every thousand feet of saw-logs, are separately collected, loaded and shipped to the pulp mill where they are successfully manufactured by the sulphate process into very heavy brown paper for "packing container liner". The present mill has a capacity of sixty tons of pulp a day. Its fuel is entirely obtained from the saw and planing mill refuse, chewed up by the "hog" into the consistency of very coarse sawdust. The company estimates that the cordwood obtained from tops and branches supplemented by sawmill waste will be sufficient for the manufacture of five hundred tons of pulp a day, over eight times the present capacity, and new plants are to be built to take care of this. One of the new finished products will be high-grade white book paper. No by-product is wasted, even the rosin and turps which rise to the surface of the cookers is saved and sold. Other by-products of the enterprise include lath, shingles, barrel staves and heads, boxes, railroad ties and turpentine. The conservation idea pervades the entire process, and each new method of utilizing waste has meant real profit to the owners.

This company, the Great Southern Lumber Company, of Bogalusa, Louisiana, is practically the pioneer of the United States in reforestation and thoroughgoing conservation methods. It has built for permanence through faith in that experiment. When that faith is justified and practical reforestation actually begins to pay dividends, we may cease to fear the exhaustion of our timber resources.

THE USES OF WOOD

WOOD IN GAMES AND SPORTS

BY HU MAXWELL

ACCORDING to available statistics, about twenty-five million feet of wood of thirty-two kinds are consumed yearly in this country by manufacturers of appliances and apparatus for games and sports. Several industries require much more wood than this one, and produce articles which, in the aggregate, sell for more money, but no one of all of them, with the possible exception of toys, affords as much enjoyment. In one direction, this industry surpasses toys as a producer of happiness; for toys concern children almost exclusively, while this concerns old, young, and middle-aged in the same way. Games are for the elderly as well as for the youthful.

The dividing line between toys on the one hand and the apparatus for sports and games on the other, need not be closely defined. One merges into the other and the place of some may be disputed. It is not the purpose of this article to draw any close distinctions or to insist upon questionable definitions. Many manufactured articles clearly belong here and doubtful ones need not be classified. The topics to be considered include tennis, golf, baseball, ski jumping, snow shoeing, bowling, archery, vaulting and billiards. It is proper to include hunting and fishing when engaged in for sport and not professionally. The limits of the field are indefinite.

The shaft or handle of a golf club represents one of the most exacting uses of wood. In this country hickory is employed in nearly all cases. It possesses the toughness and elasticity necessary, and it surpasses in these qualities any other known wood. In other countries, these shafts are sometimes made of

hornbeam, greenheart, and other foreign woods, but hickory has nothing to fear in competition with the best of them. The woods listed as sources of material in this industry consist of twenty-six hardwoods and six softwoods. Seven are foreign. The list of woods follows:

Woods	Feet Used Annually
Hickory	4,944,000
Maple	4,913,815
Elm	3,226,750
Ash	3,189,000
Oak	2,497,559
Birch	983,233
Yellow poplar.....	970,200
Yellow pine.....	943,000
White pine.....	105,000
Basswood	318,600
Lignum-vitae	24,050
Chestnut	222,000
Beech	212,000
Persimmon	206,000
Spruce	191,800
Ebony	189,000
Hemlock	180,000
Cypress	176,000
Red gum	150,000
Mahogany	100,000
Douglas fir.....	85,000
Cottonwood	60,000
Black walnut.....	41,000
Spanish cedar.....	31,500
Sycamore	30,500
Circassian walnut.....	25,000
Rosewood	24,400
Tupelo	20,000
Teak	10,000
Dogwood	6,000
Holly	1,500
Cherry	600
Total	25,191,907



A YEW TREE GOOD FOR ARCHERY BOWS

The American yew tree that furnishes the wood of which bows are made is found on the Pacific Coast. The accompanying photograph represents a tree in Oregon. It is this wood's elasticity and "nervousness" that gives it such great value as bow-wood. A fine yew bow sells for three times its weight in silver.

The manufacturers of golf shafts select their wood with infinite care, because much difference exists in the quality of hickory. It is not unusual for manufacturers to advertise that their product is "northern second growth hickory." That is a trade term rather than a scientific definition. Good hickory may be produced in the South as well as in the North; and "second growth," if it means anything, implies that the tree has grown in open ground, and has therefore, grown rapidly and consequently

has wide growth rings with plenty of dense wood. In one sense, every tree is of second growth if compared with its parent tree. Some people understand second growth to mean sprout or coppice growth, originating in stumps where other trees of the same species have been cut. So far as hickory is concerned, the wood of sprout trees is



EQUIPMENT FOR A HUNTER

The hunter prepares for game in the air, on the water, and on the land. Canoe and paddles are for water travel; a take-down rifle for large animals; a pistol for close quarters; specialized calls to decoy ducks, geese and cranes, and wood forms an essential part in all of these articles.

usually inferior to that from trees growing from nuts. The user of a hickory golf club handle is told many things regarding the growth and character of the wood, and some of the claims are more fiction than fact. The main point is that hickory is unsurpassed as golf shaft material, but it should not be forgotten that there are many grades and qualities of this wood.

The shaft is not the only wooden part of the golf club. The head is as important as the handle, but no more important. All handles are of wood, but some heads are metal, others of wood and some partly of ivory. The wooden head only falls within the scope of this article. Several woods are available, maple, birch, beech, lignum-vitae, dogwood, and persimmon. In this country the best heads are understood to be made of dogwood and persimmon. The head's contact with the balls, when the club is driven with all the force that a strong man can give it, tries severely the strength and toughness of wood. If it is not first class, it flies to splinters.

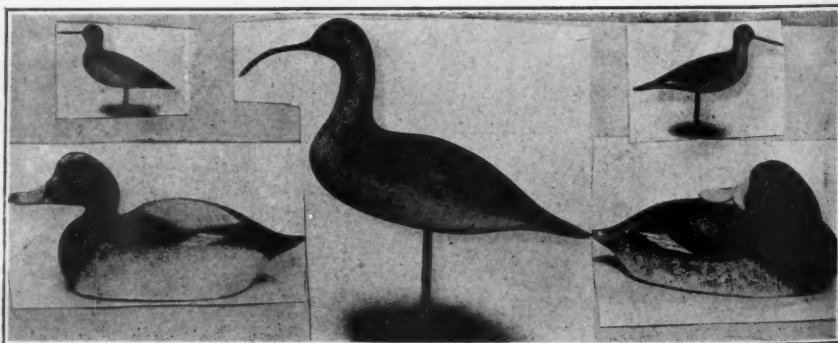
Dogwood and persimmon

as equal to that of hickory or ash, and appearance counts for much.

WEIGHT TABLE

Wood	Strength	Hardness	Weight	Shrinkage, Per Cent of Green Bulk
Dogwood.....	13,300	2,530	52	19.3
Persimmon.....	23,700	3,180	53	18.3
Hornbeam.....	18,600	3,390	49	18.6
Shagbark.....	22,600	50	16.7
Beech.....	15,000	1,190	44	16.2

The rim affords an anchorage for the whangs or laces which form an essential part of the racket. The handle is of lighter wood, or frequently two woods appear in the handle, one of light color, one of dark, to give



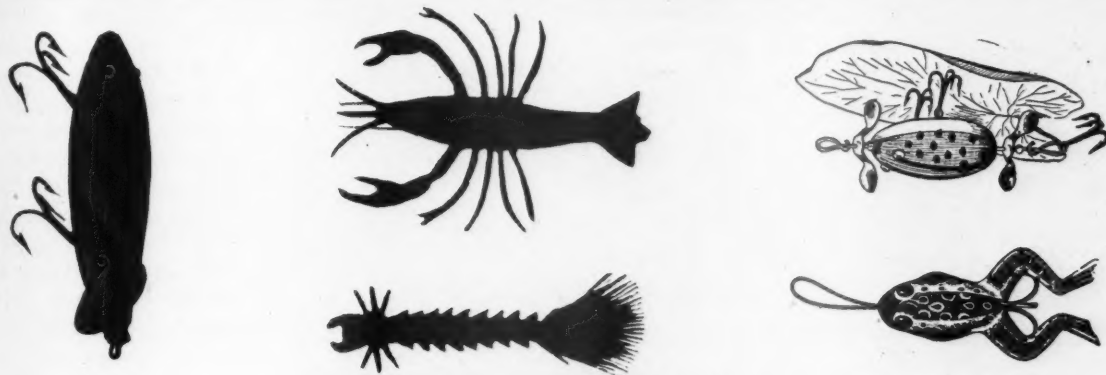
WOODEN BIRDS EMPLOYED AS DECOYS

The hunter who bides his time till the open season arrives for water birds, depends upon decoys to lure the ducks, geese and cranes within range of his fowlingpiece. He expects to work from ambushes and concealment. Decoy birds are generally made of cedar wood, that being light and durable.

possess qualities much alike. In order to understand and appreciate these qualities, it is proper to compare them with other very strong, hard, and heavy woods.

Among the woods in this list, persimmon is unsurpassed in strength, hardness and weight. Dogwood falls a little below persimmon in some of these qualities, but rates above all other woods of the United States with few exceptions. The golf club must have weight in order to deliver the player's blow most effectively. It must have hardness and strength to withstand the impact.

Good tennis rackets require choice woods. Strength is furnished by the bentwood rim or bow, which is usually ash or hickory. Elm is serviceable but its appearance is not regarded



DIFFERENT PATTERNS OF WOODEN FISH BAIT

The same kind of red cedar that is used in making lead pencils is in use by manufacturers of artificial bait or lures for fish. A fish is stupid and is slow to suspect or detect a counterfeit. For that reason it is easily taken in by wooden minnows, beetles, crawfish, helgramites, frogs, and nearly everything else that crawls, swims, flies or wriggles.

pleasing contrast. The dark wood may be walnut, mahogany, cherry, rosewood, or Spanish cedar.

The remarkable differences in prices of tennis rackets are not so much due to the differences in the cost of the raw materials of which they are made as to the kind and amount of labor bestowed on their making. The best tennis rackets are works of art, and the skill of the worker is reflected in the price as much as in any other article belonging to sport and athletics.

The game of croquet does not develop experts and enthusiasts to the extent that golf and tennis do; but more people play it and more wood is consumed in providing the balls, mallets, and stakes than in the production of golf clubs and tennis rackets combined. The entire playing outfit of croquet is made of wood except the arches, and sometimes these are of bent wood. The

makers of croquet sets use more maple than any other wood; but the mallet heads of fine sets may be of lignum-vitae or teak; and the mallet handles may be of beech and birch as well as of maple. The balls wear

out sooner than the other parts of the outfit. They gradually go to pieces by splitting, a chip at a time.

One of the oldest games in America, in the playing of which wooden implements were used, is la crosse. It originated with Indians in prehistoric times and was widely known among the tribes of the northern United States and southern Canada at the time of the earliest exploration. The redmen called the game "baggatiway," but the French named it la crosse, which name it retains. It is not often played in the United States, but is popular in Canada and is played in most English-speaking countries. It partakes partly of the nature of



PARAPHERNALIA FOR TENNIS PLAYERS

The tennis racket is made of wood and raw hide, and several fine woods are commonly used in the production of the article. Ash, hickory, cedar and mahogany are in demand. Wood is not wholly essential in the construction of tennis courts, but posts and railings are often of wood.



THE COMPONENT PARTS OF GOLF CLUBS

The golf club stands high in the list of articles connected with sports, and it is essentially of wood, but, of course, some heads are of metal, though all handles or shafts are made of wood, for which no substitute has been found. Hickory is taken for the shafts and dogwood and persimmon for the heads.

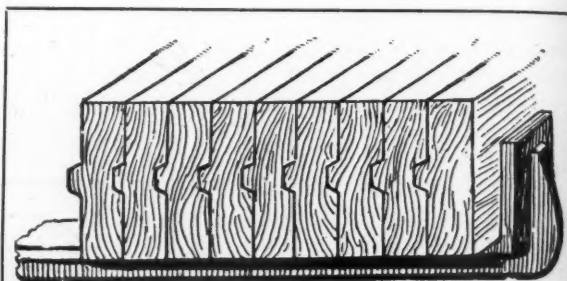
tennis and partly of football. The wooden implement of the game is the stick or racket, four or five feet long, provided with a net for catching and throwing the ball.

It is not a very important game, judged by the amount of wood used and the number of people who play it; but it is of great historical interest. The stick is always made of hickory, and it is said that no Indian tribe played the game except those occupying regions where hickory grew or where it could be obtained. No other wood is considered sufficiently strong, tough, and resilient to stand the rough work of the game. The sticks have usually been made, and are still made, by Indians. The only factory is at Cornwall, Ontario, where a dozen or more Indians spend the winter whittling out the sticks. These Indians are the descendants of former generations of stick makers. Their work is rough and "home-made," but the sticks sell in England, New Zealand, Australia, South Africa, and Canada, as well as in the United States. A game was played every year by the students of the Indian School at Carlisle, Pennsylvania. The Indian makers claim that they alone possess the secret of the stick, and know how to curve it just right and hang the net in the proper manner.

The regulation game is now played by twenty-four persons, and it is conducted according to fixed rules, but it was a wild and furious affair as the Indians played it in early days. Hundreds of

excited, yelling savages took part on either side and the field was half a mile long. The balls used now are of rubber, but the Indians in their early games employed balls hewed from knots of hickory, oak, ash, elm, black gum, and pitch pine. The balls weighed two or three pounds. In lieu of knots, the Indians used boulders the size of croquet balls. These missiles were hurled down the field from the nets at the ends

of the sticks, and the force was such that players were frequently crippled or killed by being struck; but, in the



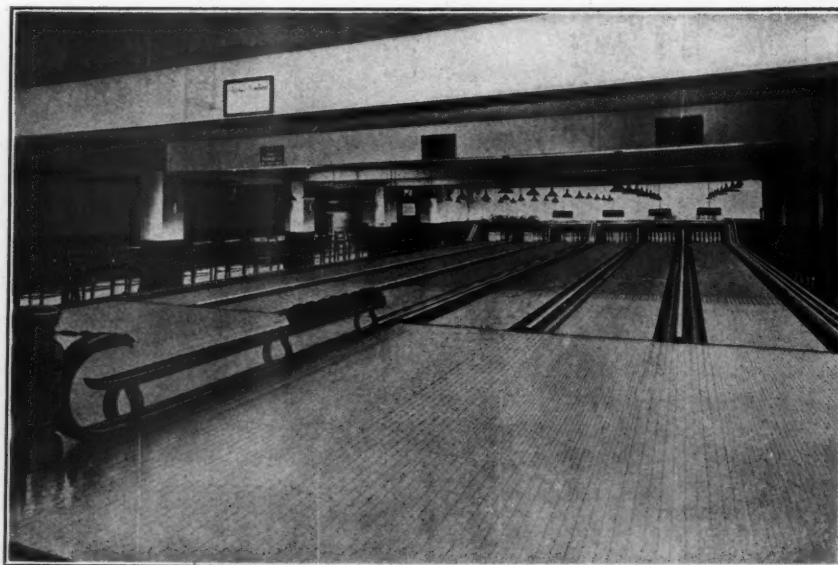
THE WAY AN ALLEY FLOOR IS BUILT

Section of the floor of a bowling alley, edge grain wood, usually longleaf pine tongued and grooved. This surface is kept polished and smoothed to make the rolling of the balls easier. (Photograph by Brunswick-Balke-Collender Company, Chicago.)

Indian's opinion, the game was not a success without a considerable casualty list. John Catlin gives an account

of a game in which six hundred Indians played at one time.

During the Pontiac War in 1763, the British fort at Mickilmacinac (near Macinac, Michigan) was captured by Indians through the stratagem of a la crosse game. The affair was staged in front of the fort by the Indians who pretended to be friendly. The rush for the



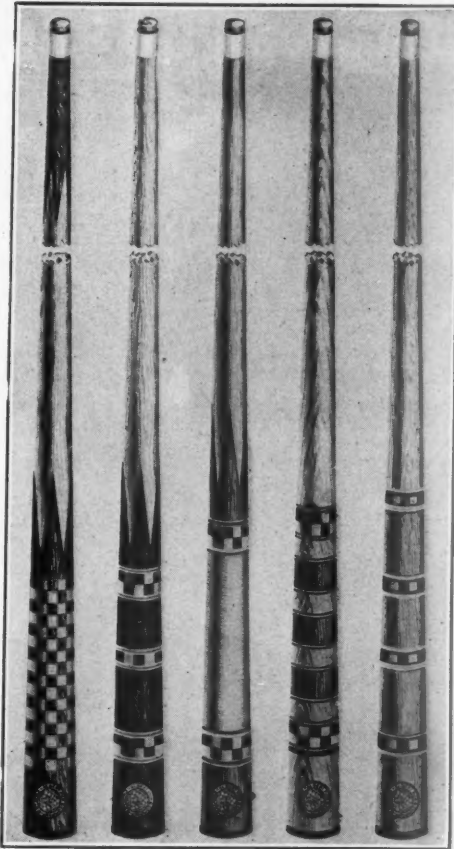
COMPLETE BOWLING ALLEYS

In the Illinois Athletic Club, Chicago. This is one of the finest alleys in the world and practically the whole construction is of wood, maple predominating. (The photograph by courtesy of the Brunswick-Balke-Collender Company, Chicago.)

ball suddenly developed, upon signal, into a rush through the gate of the fort, and the garrison was immediately massacred.

For the manufacture of baseball bats no substitute for wood has been found, and the many kinds tried have one by one been rejected till very few remain. Ash has won the leading place. Several qualities must be considered in selecting wood for bats, but the most essential are weight and strength. The shock and strain are severe at the moment of impact when the well aimed blow meets the flying ball in mid air and almost instantly stops it and sends it in the opposite direction. If the wood is not excellent, the blow shatters it. Ash stands better than any other wood that possesses the other necessary qualities.

The weight of the bat is important. The striking force is, to a large extent, in proportion to the weight, and ash seems to meet that requirement. The ordinary ball player may not be hypercritical of his bat. If it is fairly good, he uses it; but it is not so with the professional. He must have a bat made to order, precise in shape and



WOOD IN BILLIARD CUES

The wood worker does some of his best displaying on billiard cues, and it is not unusual to employ several kinds of woods, some of them finely colored species from foreign countries, such as ebony, mahogany, padouk and box wood. (Photograph by courtesy of Albert Pick & Company)

weight, and of course it must be of a specified wood.

Woods other than ash are used for bats, for many players are not particular. Willow is very tough and it stands much rough treatment, and it has held its place. Small bats for boys may be of maple, birch, beech, elm, and many other woods.

Wood supplies the principal apparatus for playing a number of games where rolling balls have a part to perform. The bowling alley is well known. The specially-made floor of the alley is generally of maple or of longleaf pine. The balls are supposed to be made of lignum-vitae, and formerly nearly all of them were of that wood, but composition has been largely substituted for wood because it is cheaper. Lignum-vitae is regarded as the best wood for bowling balls. It possesses the requisite weight and is exceedingly hard and tough.

The pins which are set up to be knocked down by the impact of the balls are generally of maple. This wood is sufficiently hard to stand much pounding, and no other of equal cost is so satisfactory. Many games of



BILLIARD TABLE

Wood has no substitute in the manufacture of billiard tables. It is chosen not only for its beauty, but because well-seasoned wood holds its shape better than any other available material for this use. (Photograph by courtesy of Albert Pick & Company, Chicago.)

a similar kind are played, some with small balls and small pins. Wood's elasticity qualifies it for this use.

Billiard cues, racks, and apparatus require large quantities of wood in their manufacture. The billiard table might be considered as furniture except that it has a specific use which takes it out of the furniture class. The wood that goes into a fine dining or library table is equally acceptable to the maker of the billiard table, and among such woods are oak, mahogany, chestnut, yellow poplar, rosewood, cherry, walnut, and ebony.



ARTISTIC BILLIARD CUES

The wood joiner and the wood engraver spare no pains to make the finest cues possible from the standpoint of workmanship. High class carving is often part of the finishing. A few of the many styles found on the market are shown in this photograph of cue handles.

The cue is equal in place to the table, and the manufacturers of cues select their woods with great care and circumspection. The weight must be neither too little nor too large; and since the size is regulated by custom, the requisite weight is secured by selecting the wood that possesses it. Factors other than size and weight must be considered. The cue must have elasticity. It must start the ball upon its journey with the proper speed. That cannot be done by the player alone, no matter how skillful he may be. The cue is called upon to do its part.

Maple is regarded as the best wood for cues. The article is often finely made, with maple as the main part but with inlays and insets of other woods, such as mahogany, padouk, walnut, rosewood, and ebony. The inlay is for the sake of appearance. The billiard cue maker is a large user of holly which

he colors black by dyeing. It then passes for ebony as inlay. Thus holly, the whitest wood, becomes an imitation of ebony, the blackest.

The triangle, within which the balls are placed on the table preparatory to beginning the game, is often of cherry. The buttons or tokens, strung on a wire and used for keeping tally of the game, are of paper-birch, maple, or of beech.

The gymnasium is largely equipped with wooden apparatus. The benches and horses may be any of dozens of woods, since particular qualities are not demanded; but

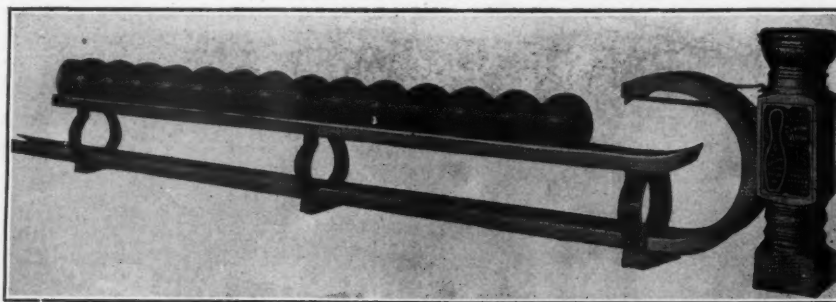
for some other parts of the equipment, selections are carefully made with the view of satisfying particular needs. Many woods will do for springboards, for it is the athlete's muscles, and not so much the wood that gives the jumper his send-off. Hickory, ash, and elm are suitable for the trapeze; the horizontal bars are of spruce, as are the vaulting poles, because spruce is among the strongest woods in proportion to its weight. Calisthenic rings are of hickory, and climbing poles are of yellow pine or some wood of similar quality. Indian



THE CUES AND THEIR STAND

Some of the finest woods grown in America, or brought to our shores, are manufactured into billiard cues. Not infrequently the same cue contains several kinds of wood, and they are often arranged to show contrasts in colors, such as ebony and holly, cherry and maple, and rosewood and walnut.

clubs and dumbbells, which always fill prominent places in well appointed gymnasiums, are usually made of sugar maple, because it is heavy, takes a smooth polish, looks well, stands all the use and

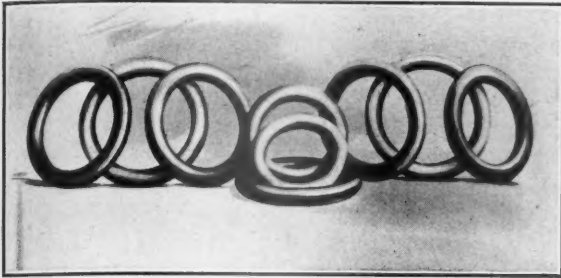


A UNIQUE DEVICE FOR RETURNING BALLS.

A loop the loop return chute for billiard balls in an alley. It is made of wood and is an ingenious device to save time and the wear of balls. The balls return by gravity to the starting place. (Photograph by courtesy of Brunswick-Balke-Collender Company, Chicago.)

abuse that is likely to be given it, and is not high in price. Many other woods are suitable, birch and beech among the best.

Boards are manufactured for special games, and so many are in use that a list would be tiresome. Some



WOODEN GYMNASIUM RINGS

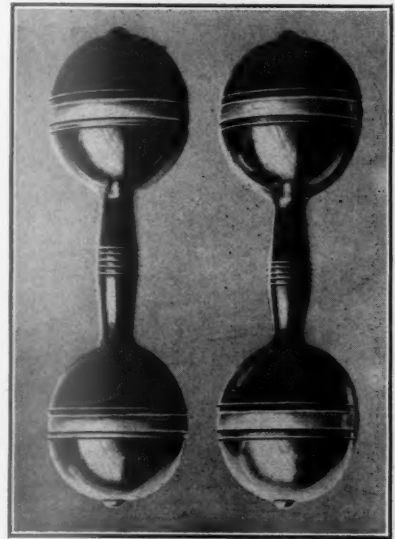
Wood meets one of its most exacting uses when it serves as rings in the equipment of the athletic room. Very strong woods are wanted and at the same time they must present a handsome appearance if they come up to specifications. (Photograph by courtesy of J. B. Hellenberg Company, Coldwater, Michigan.)

games are for children, others for those who have put away most childish things, but who still find amusement in certain games. Chess appeals to mature minds, and wood supplies most of the accoutrements with which it is played. Some of the best are of ebony and boxwood, but very satisfactory games may be played with yellow poplar, basswood, walnut, maple, and birch outfits. The same holds true of checkers, but that game usually is rated a little lower than chess in scientific points; though no less an authority than Edgar Allen Poe holds that as a mental exercise of the highest and purest sort, checkers surpass chess. Doubtless, very good players would hold different opinions as to that, depending upon personal training and preferences.

In athletics, sports, and games, the woods used in providing the equipment are no respecters of conditions and persons; for as interesting and scientific a game of check-

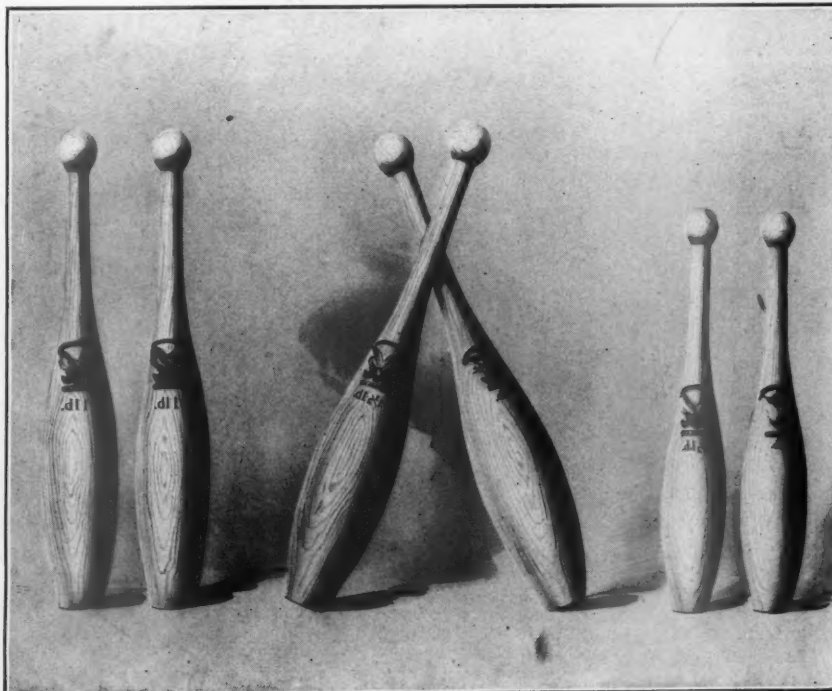
ers may be played by the local visitors at a cross-road's store on a rainy day, with the checker board penciled on the upturned bottom of a shoe box, as can be pulled off by experts in a club room with a ten dollar inlaid satinwood board. Wood in supplying the wherewithal for games, contributes to the enjoyment of high and low, rich and poor alike.

The principal sales of bows and arrows are now made to archery clubs whose members shoot at targets. No large quantity of wood is required to supply the arrows and bows, but some of the wood is worked into highly specialized products. Ash, hickory and western yew furnish the bow wood, and the arrows are of numerous woods. The highest priced



WOODEN DUMB BELLS

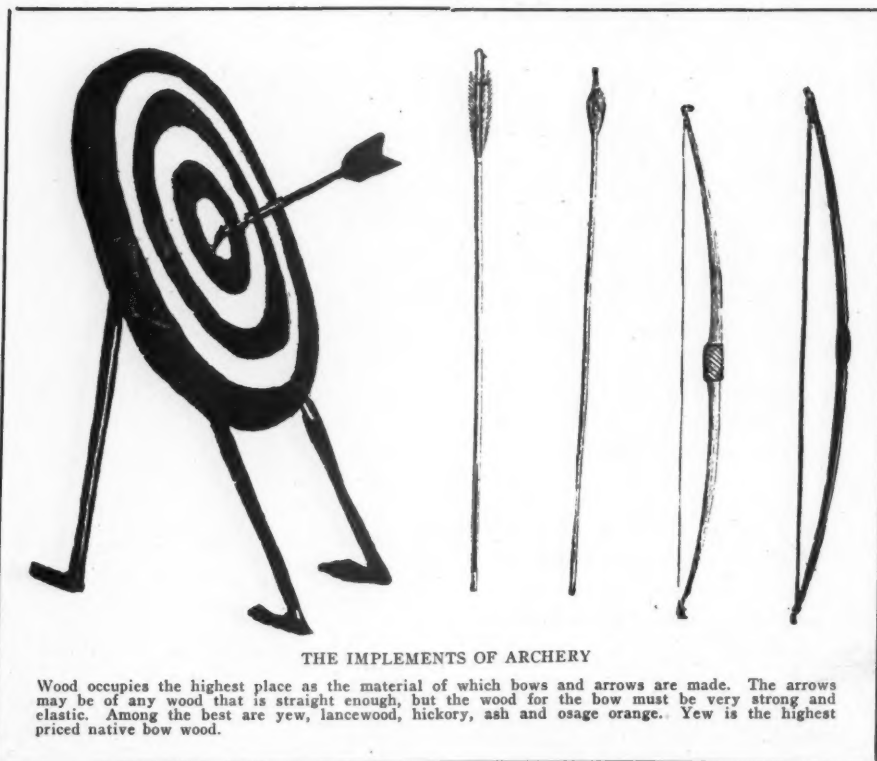
No gymnasium is considered complete that is not equipped with dumb bells, and wood is the favorite material of which they are made. The choice is given to the heavy, firm wood and preference to those most attractive in appearance. (Photograph by courtesy of J. B. Hellenberg & Company, Coldwater, Michigan.)



WOODEN ATHLETIC CLUBS

Most firm, heavy woods are suitable for the manufacture of Indian clubs, but perhaps more are made of maple than any other wood, though walnut and mahogany are often seen. (Photograph by courtesy of the J. B. Hellenberg & Company, Coldwater, Michigan.)

bow material is the yew that grows in Oregon and Washington. A bow made of this material by an expert may sell for one hundred and fifty dollars, though not more than one foot, board measure, of wood is represented in the finished bow. The selection of the raw material is one of the most particular jobs of the bow maker. He prefers a yew stave about half and half heartwood and sapwood,



so that the finished bow will display red heart on one side, and white sap on the other. No appreciable difference can be noticed in the resiliency in the heart and sap of yew, when it has been properly seasoned and prepared.

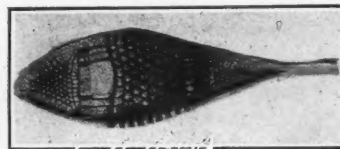
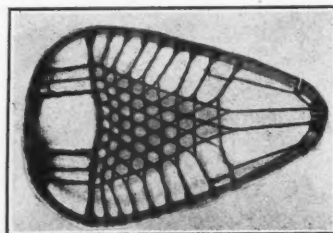
The bow and arrow were once the chief weapons of war and hunting. Now they are little used except for sport. Within the past two or three generations, hunters made use of the bow occasionally in the western country. A mounted Indian or white man with bow and arrows sometimes could kill more buffaloes than a man could kill with a rifle. At close range the arrow was as deadly as the bullet, it made less noise, and arrows could be discharged three or four times as rapidly as bullets from muzzle-loading guns.

The early English archers were rated the best of their time, and most of their bows were of yew. American Indians who were excellent archers, made bows of various woods, ash in Virginia, locust in Carolina, cottonwood in New Mexico, Osage orange in Texas and Kansas, and hornbeam and hickory in nearly all parts of the eastern half of the United States. Ten times as much wood was required for

large numbers in the northern country. Snow shoes and skis are familiar sights where winters are cold and snow is abundant. These are worn on the feet and differ in pattern and appearance, but both are employed in walking on the snow for both pleasure and business. They

have a place in a number of games. The skis are thin, narrow boards, curved upward in front, usually from five to eight feet long. The snow shoe, as the term is usually understood, is shorter and broad-

er, and instead of being all wood, it generally consists of a wooden rim or hoop, cross-strung with thongs of



TWO STYLES OF THONGED SNOW SHOES

The long model in the illustration is the one in general use and is good on all kinds of snow. The other is the "bear paw" model and is more nearly round. It is suitable for rough country, steep mountains, and heavy snow. It is popular on the high western plateaus and in the far Northwest.



(Continued on Page 444.)

TREES AND SHRUBS FOR THE HOME GROUNDS

BY LILIAN M. CROMELIN

AERICAN FORESTRY is pleased to believe that there is a growing interest in the use of shrubs in beautifying the home grounds and wishes to encourage those who may hesitate to make ornamental plantings because of the supposed large amount of time necessary to set and care for the shrubs. As an example of what has been done in ornamental planting by a busy man before and after office hours and on holidays—and all in addition to caring for a large fruit and vegetable garden—the experience of Mr. C. P. Close, of College Park, Maryland, is given, together with photographs showing the beginning in the spring of 1909, the progress made, and the present appearance of his home. Besides the increase in property value due to the shrub-

The yard on Mr. Close's property is 150 feet across and 187 feet deep with the house facing east and set a little to the north and east of the center of the yard. It was built in 1908 and the landscape plan was worked out during the following winter. The place was bleak and lonesome in the spring of 1909 (Fig. 1) when the first planting was done. Additional planting was made in 1910 and a very little in following years. The growth in most cases was vigorous, almost too much so, for the shrubs seemed to think they were running wild and had to be tamed with the pruning shears two or three times a year. This growth means good soil, for practically no manure or fertilizer was used—only a little mulch of leaves or other vegetable matter.

The front walk has a double curve, which invites planting at both ends. The lawn was seeded in the fall of 1908 and reseeded in the spring of 1909. The house faces east, and part of the porch is uncovered.



Surface drainage is only fairly good in this section, so the cellar floor is only 18 inches below the ground surface, leaving most of the cellar wall above ground. This high wall permits the use of the tall shrubs shown in later pictures.

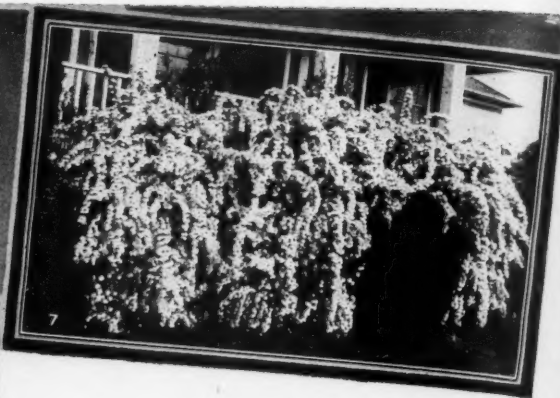
FIGURE 1. THE PLACE IN THE SPRING OF 1909, BEFORE ANY PERMANENT PLANTING WAS DONE. COULD ANYTHING LOOK MORE LONESOME? BUT WATCH THE TRANSFORMATION!

bery, the satisfaction of creating a beautiful spot in which to entertain one's friends and the birds and bees and rabbits, and the invigorating health resulting from out-door work in such surroundings, make it much worth one's while to spend a few dollars for shrubs for home planting.

Like everything else, the price of shrubs and trees has shot upward, but not in proportion to that of the wages of most classes of labor. Prices vary according to the kind of shrub, but range usually between fifty cents and one dollar each. The price of young trees like those shown in the photographs will probably vary from two to four or five dollars each. The investment is not great when it is realized that a dollar will grow into a ten to twenty-five dollar increased valuation in two or three years.

The pictures tell a part of the story of plant life on this attractive place, but space forbids the use of others which show the snowballs, lilacs, philadelphus, deutzia and spirea; colored-twigged dogwoods, jasmine and golden yellow Russian willow with evergreen background for winter effect; coral berry, abelia which flowers all summer; Japanese barberry eight feet high, magnolias, dwarf fruit trees and filberts in separate clumps, and a few nut trees and other things.

The house sets on a high cellar wall so large shrubs were needed next to the house and shorter ones next to the lawn. At the front to the left of the front steps is a group of *forsythia suspensa* or golden bell. These think nothing of shooting up eight or nine feet on short notice and need about three prunings a year, one after



GROWTH IN FIVE YEARS.

Figure 2. May, 1915. The tall shrubs at the right of the picture are Tartarian bush honeysuckle, both white and red flowered. These are pruned severely in early spring and grow four to 6 feet in a season. In front of the right half of the covered porch are forsythia suspensa, or golden bell. These are among the earliest spring bloomers. In front of these and next to the lawn are deutzia gracilis, which have the most graceful spikes of delicate and fragrant white waxy blooms. The low evergreens along the walk are dwarf Chinese golden arborvitae. The tall ones are pyramidal golden arborvitae. These grow rather rapidly and must be clipped back occasionally.

TWO-YEAR GROWTH.

Figure 3. May, 1911. This shows the right of the front steps and is a striking contrast to Figure 1, just two years earlier. The tall plants next to the porch are rose-colored weigelia. These are rank growers, forming long plumes of beautiful flowers. The plants in bloom are spirea Van Houttei, the most graceful of all the spireas and usually called bridal wreath. The plants next to the lawn in the foreground are the feathery foliaged spirea Thunbergii. This is the earliest spirea to bloom in the spring. In the angle of the porch to the left are two plants of European euonymus. All of these plants except the euonymus should be pruned in spring as soon as they have bloomed.

ALSO TWO-YEAR GROWTH.

Figure 4. August, 1911. This is a continuation of Figure 3 around to the right. The clumps in the center background are hydrangeas on each side of the cement walk at the front entrance. These two-year-old plants of hydrangea paniculata grandiflora are nearly four feet high and in full bloom. To the right of these is a bed of perennial phlox. These were taken out later and replaced by shrubs, such as abelia, hydrangea hortensis and dwarf philadelphus. To the right of these the tall, healthy looking plants are European euonymus, shown in Figure 3. In front of these, next to the lawn, are Japanese barberry. The vine on the front of the porch is clematis paniculata. The top of this vine kills down each winter, so it does not show in Figure 3, taken the previous May.

AFTER THREE AND A HALF YEARS.

Figure 5. August, 1912. Compare with Figure 1, taken 3 1/2 years before. Is this transformation possible in so short a time? The picture says, Yes! The shrubs next to the house are described in detail in Figures 2, 3 and 4. The California privet hedge as shown is about 5 or 6 feet high. The big white blooms just inside the hedge are the hydrangeas shown from the other side in Figure 4. At the corners of the covered porch are robust plants of clematis paniculata in full bloom. The two "alligators" climbing over the porch railing at the right are bitter-sweet and dutchman's pipe vines getting up in the world.

FIVE YEARS FROM BARE GROUND.

Figure 6. This shows the place in May, 1914. The two Norway maple trees in the foreground were moved there in April, 1909. Most of the top was cut off and they were taken up with big balls of earth around their roots. In the back yard are four more of these trees, moved there at the same time. At the left of the front steps is a clump of spirea Van Houttei in bloom (see Figure 7), and at the left boundary of the yard, partly hidden by the trolley pole, is another clump of the same kind in bloom. In a corner of the yard to the left of the trolley pole and just inside the hedge is the clump of lilacs and snowballs, the latter being in bloom, and at the right of the picture is a group of native trees and shrubs moved in from the fields and woods.

ALL IN FIVE YEARS.

Figure 7. May, 1914. Group of spirea Van Houttei, shows also in Figures 3 and 6. This forms big, graceful billows of bloom resembling a frozen waterfall. The gem of the spireas, five years after planting. The evergreen checking its overflow is retinospora ericoides, with its dense, dark green, feathery foliage, which is hardy and stands any exposure perfectly.

blooming in the early spring and two later at intervals of a few weeks to keep them from hiding the house. During the winter the English sparrows enjoy picking off the blossom buds. In front of these are *deutzia gracilis*, with the most graceful, delicate and fragrant of white waxy blooms. To the left of the *forsythias* round the corner of the porch is a background of *colutea arborescens* in front of which are red and white tartarian honeysuckle. The *colluteas* grow as fast as the honeysuckles and bloom nearly all summer, the blossoms being followed by large swollen seed pods. The single bush in the lawn, a few feet from the honeysuckle, is *Berberis neubertii*, the holly leaved barberry. This helps to form the background to screen the back walk from view. Figures 2, 3 and 4 show this section at different times.

taken out and replaced by *Eva Rathka wiegelia*, a late bloomer with deep red flowers. All of these plants should be pruned in spring as soon as they have bloomed.

The hydrangeas, shown in Figure 4, grew to be eight feet high, covered with hundreds of immense white blooms turning pink when cool nights came in September and October. The blooms come on new growth of the same year, so early each spring the last year's growth must be cut back to short spurs of two or four buds. To the right of these is a bed of perennial phlox. These were taken out later and replaced by such shrubs as abelia, *hydrangea hortensis* and dwarf philadelphus. There is a hedge of California privet just outside these beds.

In front and just to the south, extending into the



THE GARAGE AND PERGOLA

Figure 8. The effective setting of the garage, shown in the Summer of 1910. The pergola was built in the Spring of 1900 and the wisteria planted then. The end plants are Japanese wisteria and the center ones are native American wisteria. (See also Figures 9 and 10.) The vines on each side of the garage door (facing east) are matrimony vines. They are supported by wires running from the base board to beneath the eaves and then across above the door. The little evergreens in front of the pergola were planted on Arbor Day, 1900, to form a wind brake against the cold northwest winter winds. (See Figure 12, five years later.) The one nearest the camera is a Colorado blue spruce which developed into an unusually beautiful specimen, admired as much as any other single tree or shrub on the place. The automobile drive is between the pergola and the evergreens. At the left of the cement walk leading to the back porch, but not shown here, is the corner planted to native trees and shrubs, the other side of which is shown in Figure 14.

At the right of the front porch is a group of *weigelia*. In front of the *weigelia* are *Van Houttei spirea*, the most graceful of all the spireas, and around to the right are *Thunberg spirea* plants. This is the earliest *spirea* to bloom in the spring. In fact, it has such a nervous disposition that a few days of winter sunshine will cause it to send out scattering blooms any time between November and April. This habit makes it unsatisfactory because it seldom has a full bloom in spring. The *Van Houttei* in full bloom is shown in Figure 7. To the right, around the corner of the porch, are *Eva Rathka wiegelia* and two plants of very slender and beautiful *philadelphus*, or mock orange, which replaced two plants of European *euonymus*. These were not satisfactory because they bloomed so sparingly, thus making no show of their strikingly handsome seed pods, so they were

lawn, are the spiny but graceful Japanese barberry bushes. In a few years these little fellows developed into stately graceful specimens eight feet high, an unusual size. In the spring every shoot has a row of tassel-like yellow flowers hanging from the under side, and every flower has its honey bee. Each flower is followed by a slender berry which turns bright red in the fall and gives color and cheer to the plants all winter. The many rows of small yellow-green blooms on these make the honey bees happy for a couple of weeks in spring and the bright red berries during the late fall and winter add a dash of lively color to brighten up the sleeping bushes.

The vine on the front of the porch is clematis. The top all kills down each winter, so it does not show in Figure 3, taken the previous May. The two "alligators" climbing over the porch railing at the right, shown in

Figure 5, are not "alligators"—they are bitter-sweet and Dutchman's pipe vines getting up in the world. Duplicates of these are at the opposite end of the porch. These were all taken out later because they helped to hold the moisture which caused the porch timbers to decay. The bitter-sweet became quite a nuisance in overgrowing and twining around shrubs and had to be cut back several times a year.

The matrimony vine, which climbs up at each side of the garage door, shown in Figure 8, is very effective and satisfactory. Part of the main stems die each winter, but enough are always left to make an enormous growth. Each spring all branches are cut back to stubs and during the summer many shoots must be trimmed off at the sides and above the door. These plants produce myriads of little flowers, dearly loved by the bees, followed by red berries which hang on nearly all winter.

On the ground within the pergola, shown in Figure 9, is the winter feeding place of such birds as the Kentucky cardinal, junco or snow bird, an occasional blue jay and the ubiquitous English sparrow. They enjoy finely cracked sweet corn, pop corn and field corn. Extending out across the lawn to the south from the barberries are the bright twigged shrubs which have their innings in winter when the beautiful bark colors are at their best. Here are the dark green jasmīne, the pale green dogwood, the rich red dogwood and the bright yellow Russian willow—and one white birch. These have an evergreen background of cypress and Norway spruce and the color

effect in winter is striking. Just south of the Russian willows a group of *eleagnus longipes* marks the south boundary. The flowers of these plants are rather inconspicuous, but they develop into beautiful cherry-like red fruits with many gray dots. These ripen just after Early Richmond cherries and the robins and cat birds are crazy to get them. To the east of these shrubs along the south boundary are first a group of Van Houttei spirea and purple leaved barberry, then single plants of crape myrtle and *magnolia stellata* backing up a bed of German iris. These reach to the corner group of snowballs and lilacs. The lilacs are wonderfully fine, with large clusters of fragrant double flowers of white, dark purple and shades of lavender color, except the Persian lilac which has the most delicate single flowers. The snowball bushes are simply masses of white balls when in bloom.

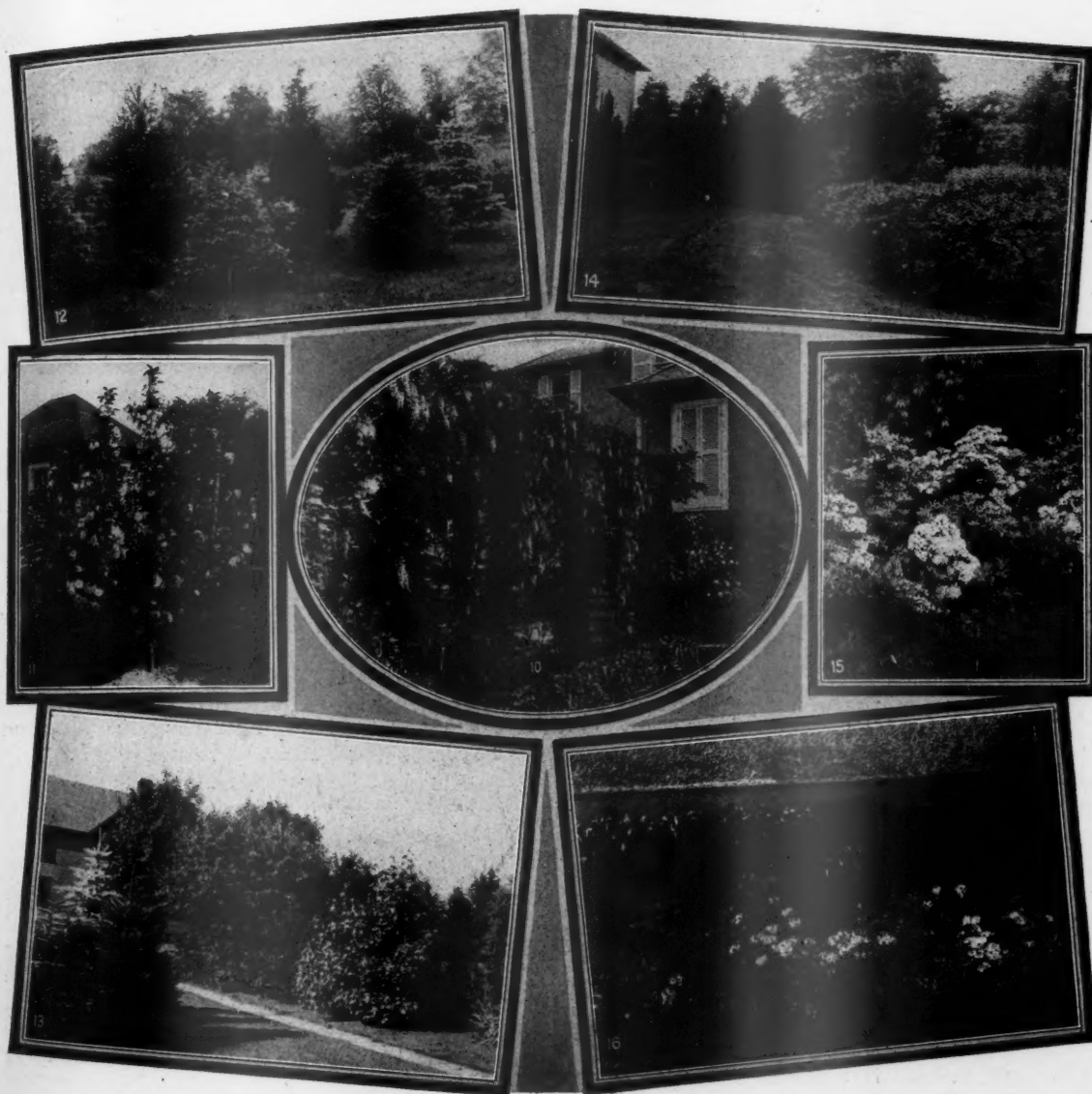
The evergreen windbrake, shown in Figure 12, was planted in 1909 and has flourished beyond belief. Three years after this picture was taken the limbs were touching in places and the tallest trees were about twenty feet high. Farther to the left, but not shown in Figure 12 are a second Nordman fir and a Norway spruce which are shown at the extreme left in Figure 9. Between the evergreens are rhododendrons in bloom. During one very cold winter the Lawson cypress was slightly but not seriously nor permanently injured. The others are as hardy as oaks in this northwest exposure. They will need pruning to prevent injury by crowding.

The bag worm is very fond of the taste of the Colorado



THE PERGOLA IN FIVE YEARS.

Figure 9. This is south side of the pergola on May 31, 1914, five years from planting. The end plants are Japanese wisteria and those blooming in the right center are the American wisteria. The Japanese plants bloom earlier and have flower clusters 22 inches long, of the most delicate lilac color. They are wonderfully beautiful. No doubt all of the plants would produce larger blooms if they were pruned moderately each spring after the manner of pruning grape vines. The flower clusters are borne on the new shoots like grapes. The Japs are much stronger than the others, and all are perfectly hardy. The low plants at the base of the pergola are rank growing single violets, which bloom very early in the spring and always have a few flowers tucked away under those great leaves when heavy freezing weather comes in the fall. Along both sides of the pergola are scores of giant narcissus bulbs and a few tulips—asleep now, but producing hundreds of big, nodding flowers in the spring. The bulbs on the south side bloom a week or ten days earlier than those on the north side, and they are of the same varieties. The clothes line post in the foreground is surrounded by a big mass of pampas grass.



THE BEAUTIFUL WISTERIA.

Figure 10. May, 1914. American wisteria shown in all the glory of its beautiful lilac-purple blooms. It is a mass of beauty. A light second crop of blooms comes in late summer and a scattering cluster in the late fall. This seeds very freely. It is one of the best of all climbers for a pergola or arbor cover and is perfectly hardy here. The flowers next to the house are the climbing rose, *Tausenschoon*.

DOUBLE FLOWERING CRAB.

Figure 11. May, 1915. This is the most beautiful of all the double flowering crabs, known as the Bechtel Double Flowering. The flowers come in clusters, and each one resembles a small shell-pink rose. The fragrance is exquisite. The tree never fails to give a big crop of blooms and is a veritable bouquet. This one was planted in 1909. It is hardy and will stand any exposure in this latitude.

THE WINDBRAKE.

Figure 12. June, 1915. The evergreen windbreak planted in 1909. The tree at the right is a Colorado blue spruce of a gorgeous silvery hue in spring when it puts on its new costume. Next to it is a Norway spruce; then come the Lawson cypress, Nordman fir, white spruce and another Norway spruce. The white spruce is the most vigorous grower of the lot. Lawson cypress is also tall and vigorous, and the others are all lusty growers. Three years after this picture was taken the limbs were touching in places and the tallest trees were about 20 feet high. The trees beyond the evergreens belong to a neighbor.

THE BACK WALK

Figure 13. June, 1915. Looking from the back porch north along the back walk also shown in Figure 8. At the left of the walk are three of the evergreens shown at the right in Figure 12, the nearest one at the left being Nordman fir, the next Norway spruce and one with the light-colored top Colorado blue spruce. At the right are the native trees and shrubs shown from the opposite side in Figure 14. Beginning at the right are two red cedars, then a couple of sweet gums with star-shaped leaves, then a native crab and a large spreading choke cherry. These plants were carried in from the fields and woods in 1909 and later years. The automobile drive is between the walk and the evergreens as shown in Figure 8.

JUST AN ODD CORNER.

Figure 14. June, 1915. The wild corner. The background is the opposite or east side of cedars, sweet gums, etc., shown in Figure 13. From left to right there are cedars, sweet gums, more cedars, native crab apple, Spanish oak, choke cherry (the large tree in the right center), native scrub pines, these being really in front of the choke cherry. The other trees in the background at the right are across the street. In front of the pines and choke cherry are several small holly trees which produce an abundance of berries for holiday decorations. There is also a strawberry bush (anonymous Americana), with gorgeous seed pods between the gums and cedars. The low plants to the left of the center in front of the cedars are mountain laurel, shown in bloom in Figure 15. At the right the large bed is the Japanese rose (*rosa rugosa*). The north end of the pebble dash house is nearly covered with English ivy. This ivy does not succeed in any other exposure. In the spring it forms many clusters of pale greenish waxy flowers. The single shrub near the house is the holly-leaved barberry (*Berberis neubertii*).

NOTHING ELSE NEEDED

Figure 15. June, 1915. Mountain laurel (*Kalmia latifolia*), in all the beauty and glory of its native heath, with a background of red cedar, choke cherry and scrub pine—part of the wild group shown in Figure 14. These get the morning sun, but not much afternoon sun. They are as contented and happy here as though they were still in the wild woods.

THE NORTH END.

Figure 16. May, 1915. Native azalea or bush honeysuckle (*Azalea nudiflora*), next to the north end of the house. These bloom as freely and beautifully as their wild sisters. They do not miss the freedom of the woods nor pine to return. Only the early morning sun strikes them. The background is English ivy on the foundation wall.

[All pictures were taken by Mr. C. P. Close.]

blue spruce and Lawson cypress. (Fig. 12.) The former was somewhat injured at the tip before the worms were discovered but hand picking and arsenate of lead spray cleaned out the invaders.

The large bed at the right in Figure 14 is the Japanese rose, *rosa rugosa*. This has rich, glossy, crinkled foliage, beautiful all season and large white and red single roses. In the fall there are many clusters of yellow-red seed pods. Each spring these plants are cut back to about eighteen inches, thus a heavy mass of foliage of uniform height is secured each year. Figure 14 shows the north end of the pebble dash house nearly covered with English ivy. This ivy does not succeed in any other exposure. In the spring it forms many clusters of pale greenish waxy flowers. The single shrub near the house is the holly leaved barberry, *Berberis neubertii*. This does not blossom but has large, dark green, spiny leaves which become bronzed in early winter and make good holiday decorating material. The leaves drop in midwinter. Next to the

house but not shown in this picture is a bed of native azalea (see Fig. 16).

The native mountain laurel and the rest of the wild group, shown in the center background of Figure 14, get the morning sun, but not much afternoon sun. They are as contented and happy here as though they were still in the wild woods, see also in Figure 15. In 1909 and 1910 these plants were dug with good balls of earth and transplanted here in full bloom—and never withered or regretted it. By digging in full bloom the plants with pinkest flowers may be chosen. When transplanted they should be mulched with vegetable matter and be watered often for a few weeks.

The native azaleas, or honeysuckle, shown in Figure 16, were also dug in full bloom and transplanted here in 1909 and 1910 with the same care given the mountain laurel in Figure 15. The plants with richest blooms were selected and they find a charming background for their profusion of lovely bloom in the English ivy on the foundation wall.

THE USE OF WOOD IN GAMES AND SPORTS

(Continued From Page 438.)

leather. Snow shoes of this kind are not always classed as sporting outfits. They are strictly for business during the deep snows and the severe winters of the far northern regions. Trappers, hunters, and travelers once habitually wore such in winter and moccasins in summer. Custom has changed somewhat now, in regions which have become thickly settled; and the snow shoe and the ski have taken their place among implements of sport.

The snow shoe, with its broad, latticed, rawhide bottom, is serviceable in walking over soft snow. The wearer does not expect to develop much speed. The sport consists in walking on snow so soft that, without such appendages, he would sink into it. Northern hunters in former times made their own snow shoes with hatchet and knife, and if leather thongs were not at hand, the lattice soles could be woven of basswood bark which can be stripped in winter as well as in summer. Bark of several other trees will serve also. Expert

woodsmen knew the art of heating the bark to make it peel in winter and to divide into strands of convenient size for braiding into soles for the snow shoes.

The hunter could split his ski material with hatchet and wedges; but the man who used snow shoes for business, nearly always preferred the broad, short pattern, with braided whang bottoms. They were more reliable than the long skis.

As articles of sport, the ski and the snow shoe are popular. The sportsman does not make them himself as the pioneer hunter did. He buys the factory-made product. The latticed snow shoe resembles in a general way a large tennis racket with the handle missing. The body of the shoe is two or three feet long and twelve inches or more wide at the broadest part. The rim is of ash, hickory, or elm. The ski is made of beech, birch, maple, ash, or spruce. The latter wood is lighter but not so strong as the others.

TWO LANDMARKS AT CORNELL PASS

TWO of the three giant white pines at the head of President's Avenue have at last bowed their heads. Familiar to many generations of Cornellians, these two landmarks, which towered over their neighbors, the beautiful elms planted by the Class of '72, have outlived their usefulness and are now stovewood. One of the laborers employed by the University—a genial, red-faced old Irishman—stopped the saw which was cutting into the heart of one of these old monarchs, and straightened up to say:

"Yis, sor, thirty-three years ago, when I furst cum to Ithaca and Mr. White was president and lived in that very house you see there," pointing over his shoulder to the president's house overlooking campus and valley from its eminence at the head of the avenue, "when I furst cum here, these trees was as big as they are right now, and there's others will tell you the same. Nobody

knows how long they've been a-standin' here.

"And a shame it is to cut 'em down, sor, but you know they was shadin' the elms and the poor devils was dead anyway. Shure, and maybe they're afther needin' a rest, too, watchin' over Cornell these long years the same as President White himself. Ah, there was a grand ould man, and don't you fergit it, sor!"

So these two monarchs of the forests that covered the hills above Cayuga long before Mr. Cornell was born, have passed to their rest. They have seen a great University spring up and grow at their very feet; many problems have been solved and many hearts made lighter under the shade of their branches. Possibly these tall and stately trees, standing straight and true against the sky at the top of the hill, helped to influence the founder to choose this spot for the beginning of Cornell.—(Cornell Alumni News.)

SNAKE LORE FOR FOREST LOVERS

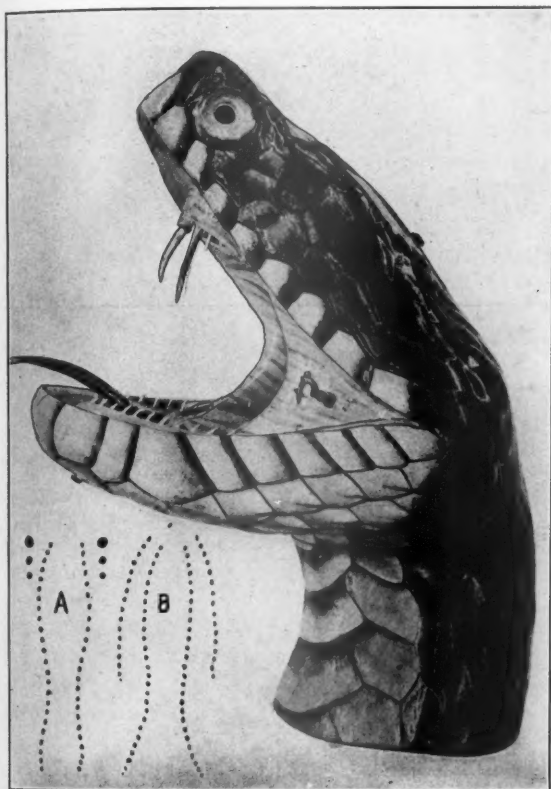
BY R. W. SHUFELDT

(PHOTOGRAPHS BY THE AUTHOR)

FROM a purely biological standpoint, snakes constitute a wonderfully interesting group of animals, as such, to study, while from an economic angle they deserve careful research and investigation. There are many points in the natural history of them that are of interest to lovers of forests. There are in the United States

inasmuch as they feed upon a great variety of noxious insects that injure or destroy our crops. Of venomous ones we have the Copperhead, the Water Moccasin, some dozen different kinds of Rattlesnakes, the mildly venomous Opisthoglyph snakes, and a couple of Coral or Harlequin snakes—less than twenty, leaving over eighty that are entirely harmless, apart from the few that occasionally kill and devour poultry or steal their eggs, which rarely happens.

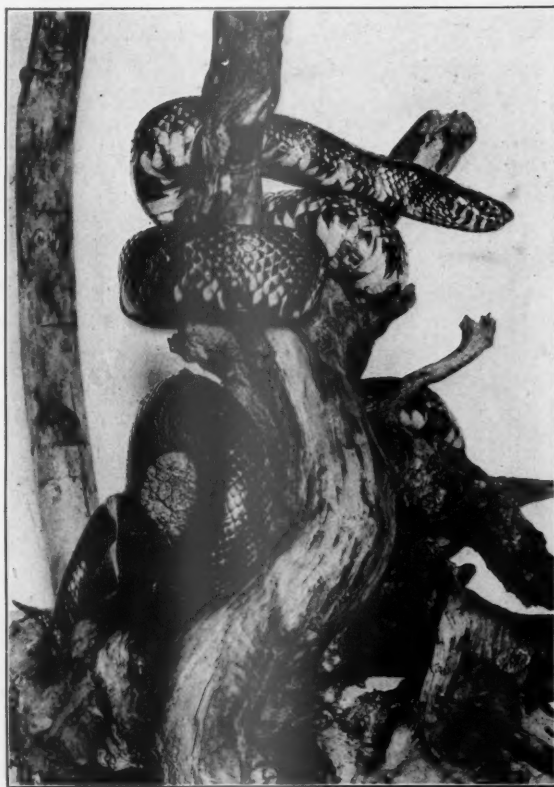
Many chapters, in many parts of the world, have been published on the nature of snake-bite and its treatment; but it is not the object of the present article to go into that, further than to say that we now have an antitoxin which has been proved of great value in saving life, where a person has been bitten by a venomous reptile. Our own surgeons are using it, and it has been in use in India and in other countries for comparatively a long time. Apart from this, it is an extremely important point to know, when one has been bitten by a snake, whether that particular snake was a venomous species or otherwise. Such information is of the utmost service



MODEL OF THE HEAD OF A VENOMOUS SNAKE

Fig. 1. This model is considerably larger than here shown, it being a beautiful reproduction of the essential parts of the head of a venomous snake. It is in the Museum of the Surgeon General's Office of the Army, at Washington, D. C.; it may be taken all apart, and thus used for lecture purposes. The diagrams A and B in the lower left hand corner show the patterns of the tooth-punctures found after the bite of a venomous snake (A) and of a harmless one (B).

considerably over a hundred different kinds of snakes that have been described by naturalists. Their distribution differs widely, some having very wide ranges, while others occur only in limited areas. Some are rare, others are extremely abundant; some are very plain in coloration, others are more or less brilliantly colored. In size they vary greatly, running from a few inches in length to six or seven feet. Our uneducated classes believe all snakes to be venomous, whereas only a comparatively few of them are so; and many are of value to man,



CHAIN OR COMMON KING SNAKE

Fig. 2. This beautiful species is entirely harmless and very gentle. It ranges from southern New Jersey to Florida. Large specimens are about a yard in length.



INTERVIEWING A SIX-FOOT BLACK SNAKE

Fig. 3. Snakes are, as a rule, not difficult subjects for photography; but much depends upon the experience and tact of the photographer and upon the temper of the snake. Here, as in all animal photography, gentleness and patience usually wins.

to physicians and surgeons, and hardly less so to the person who has received the bite.

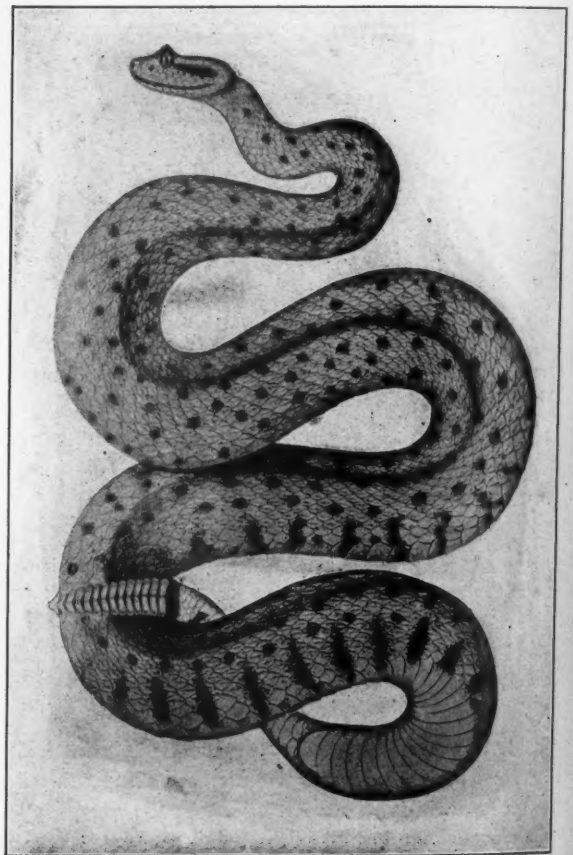
Several times in the writer's own experience, where he has been called to attend a case of snake-bite, the patient had undertaken to apply the usual popular remedies—that is to say, the place bitten had been freely sucked; two or three ounces of whiskey had been administered; a ligature tightly applied above the wound, and the latter perhaps lanced or even cauterized. Upon the arrival of the surgeon the patient usually assures him that he has done all in his power with respect to initial treatment. When questioned as to what was done with the snake, the usual prompt reply is that its head had been smashed, the body cut up, and the whole thrown where it could not be recovered. Unfortunately, this eliminates a most valuable aid in diagnosis. Next, when did it happen? And the reply is, "About two hours ago." "And you have no pain or other symptoms?" "No; only some in the wound."

Upon examining the punctures made by the teeth of the snake, they appear exactly like those in *B* of Figure 1, and not like those in *A* of the same cut. It will be noticed that in the upper part of *A*, on either side, there are three punctures, of the sizes and arrangement shown. These

represent the punctures made by the fangs of a venomous reptile, and when the wound exhibits these, prompt remedial measures are called for. On the other hand, however, if the punctures of the teeth are arranged as shown in *B*, the bite was from a non-venomous snake, and all that is called for is to suck the wound for a time and no harm will follow. In these two diagrams, the *outer rows* are made by the teeth of the upper jaw and the inner ones by the lower—a fact that will be appreciated by studying the head of the venomous snake reproduced in the same figure (Fig. 1).

These facts are well worth remembering; and if intelligently applied they may save the person bitten no end of pain, trouble, and expense. Up to date the writer has never been bitten by a venomous reptile except by the "suspected" Gila Monster or *Heloderma*; but on the other hand he has been bitten upon numerous occasions by blacksnakes, garter snakes, puff adders, and various other species, both great and small.

Most of our American snakes are terrestrial by nature; some are secretive or burrowing, and one or two are



HORNED RATTLER ALSO CALLED A "SIDE WINDER"

Fig. 4. No rattlesnake in our fauna is more distinct than this one, it being one of the smallest of all the venomous reptiles, and may at once be recognized by the little horn over either eye. It occurs on the desert areas of southern California, Arizona, Nevada and Utah.

either semi-aquatic (Water moccasin) or arboreal (Cyclophis). As a rule, they lay subellipsoidal, white eggs; while a few, as in the case of the common water snake, bring forth their numerous young alive.

Omitting any notice of the three beautiful Boas found in Lower California and Arizona, and the small Texan and Californian blind snakes (*Glaconia*), we may pass to the Garter or striped snakes. Of these there are many species found in different regions of the United States. Some are by habit gentle, very beautiful, and attractive in many particulars (Figs. 5 and 6). No one of them is in the slightest degree venomous, although several of the species are vicious by nature, and will bite one if incautiously handled. They are extremely variable with respect to coloration and markings, and Dr. Raymond L. Ditmars says of them in his "Snake-Book" that "no genus of North American serpents is so difficult to describe as the present one—and particularly to treat in a popular manner. Among several of the species, the variations in pattern are so elaborate, that to describe the species on the basis of coloration alone would be to bring about a meaningless repetition of exhaustive details. The common species vary in a bewildering degree, and in such



THE LITTLE RIBBON SNAKE

Fig. 6. Ribbon snakes of the species here shown are found throughout eastern United States; they inhabit the reedy margins of ponds and streams, subsisting largely upon small frogs and other aquatic forms. This one was captured and photographed by the writer, and it was found in the very plant here shown.



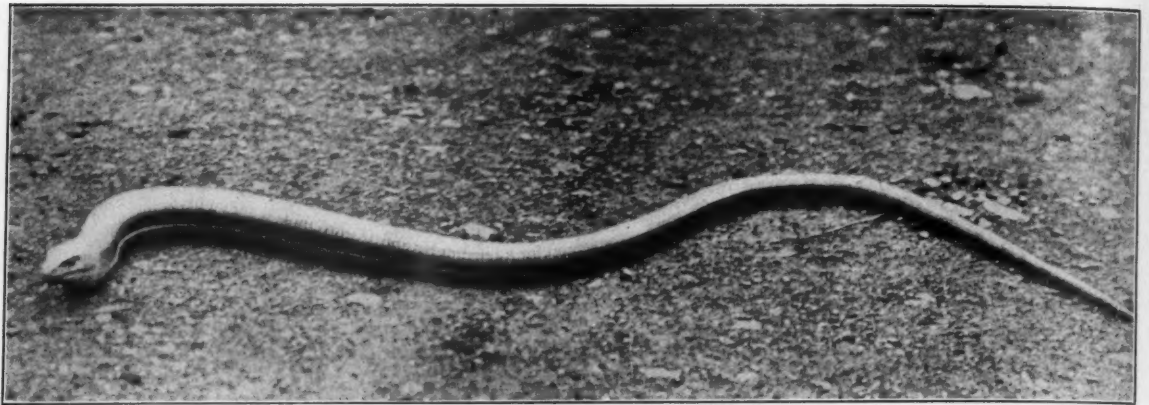
A COMMON GARTER SNAKE

Fig. 5. This specimen was taken by the writer in the District of Columbia, and was photographed before it was sent to the "Zoo" at Washington. It is a snake with a bad temper; while its bite, although by no means agreeable, is attended with no danger whatever.

a fashion that the beginner might be led to mistake a pronounced variety of one species for the typical form of another."

Many of the species of the Garter snakes are more or less aquatic by nature, and live upon amphibious animals of various kinds, as frogs, toads, insects, or even small fishes, when they can take them. A Garter snake once captured by the writer on the banks of the Hudson River, near New York City, gave birth during one night to no fewer than seventeen very beautiful young ones. A fine 8x10 negative was made of this family, and is now on file with many other snake negatives in the writer's collection.

Garter snakes, when kept alive under proper conditions and regularly fed with fish, frogs, etc., are found to present many habits of marked interest to the students of the genus of reptiles. In the Reptile House of the Bronx "Zoo", at New York, one may see numbers of



OUR LIMBLESS LIZARD—THE "GLASS-SNAKE"

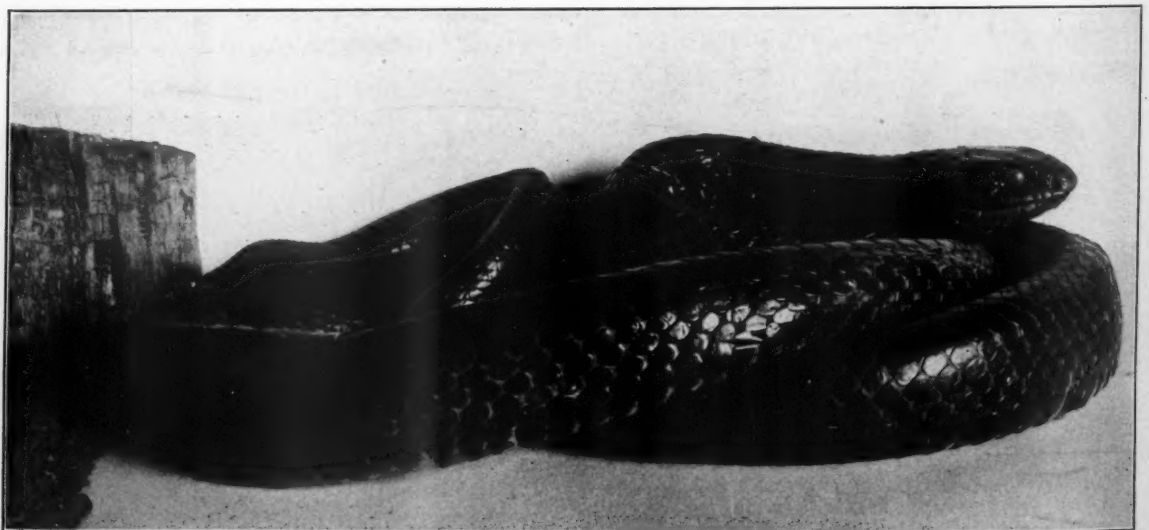
Fig. 7. A lizard with no legs might easily be mistaken for a snake by one unfamiliar with our common reptiles. This picture of one of the species which lives in Central and Eastern United States was made from a cut in "Animal Life" by the writer. (Published by Hutchinson and Company, of London.)

various species of garter snakes in confinement, and it is wonderful to watch them at feeding time. After seizing their prey, they have a way of violently thrashing their tails, and otherwise behaving in a most frenzied manner.

Some of our garter snakes are spotted, as Marcy's Garter Snake, of central Texas and Arizona. All garter snakes are perfectly harmless, and if properly handled will not even bite. Our common garter snake hibernates during the winter, many often being associated in the same lot. Without exception, they all bring forth their young alive, and many of them are kept as pets from one end of the country to the other. They bear captivity well; some even come to know their keepers, and take small frogs and fish from their fingers—sometimes coming to the door of the cage to get what is offered to them.

We have over a dozen species and subspecies of King snakes in this country (*Lampropeltis*); they are all harmless, extremely gentle, and wonderfully beautiful as a rule. The type species is the Common King Snake, also called Chain or Thunder snake (*L. getulus*). A beautiful, living specimen of the Florida King Snake (*L. g. florida*) was recently sent the writer by Mr. Fred W. Walker, of Orlando, Florida (Figs. 2 and 3), and this is now living in the "Zoo" at Washington.

In all the forms the scales of the skin are lustrous, glassy, smooth, and show prismatic colors on movement. Some forms are jet black with vivid white markings; others are greenish, or brown, or olive and yellow markings. These serpents must be seen to be admired, and different forms of them occur in all parts of the country.



THE GOPHER OR INDIGO SNAKE

Fig. 8. A specimen taken in New Orleans by the writer had a length of six feet, three inches. It was of a shiny, rich blue-black or purplish black above, and somewhat lighter on the lower parts; it is a harmless species in all respects.



YOUNG OF THE PUFF ADDER

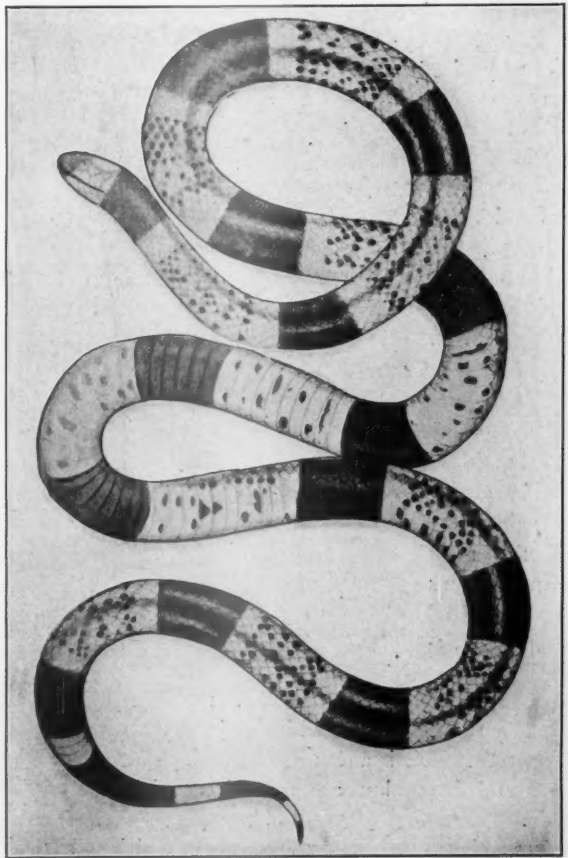
Fig. 9. Here we have two pictures of the same specimen; it is the beautifully marked young of our harmless Puff Adder or Hog-nosed snake, the colors being a rich brown on a pale tan. In the lower section of the picture the snake is blowing itself up preparatory to puffing.

They are most useful to the agriculturist as they catch and devour thousands of field mice, while most of the species—the common King Snake in particular—prey upon the venomous snakes; hence their name of King Snakes. Hundreds upon hundreds of rattlers are trailed, captured, and devoured by King snakes every year. To see a King snake attack a big rattlesnake, get away with him by squeezing him to death in its coils, and then swal-

lowing him, is a scene not likely to be forgotten. One of the most remarkable facts is that all King snakes are immune with respect to the venom of venomous species. One may inject with a hypodermic syringe a big dose of rattlesnake poison into any part of the body of a King snake, and it will have no more effect than so much water. Copperheads are destroyed and eaten in the same way; so it may be said that this species and its various subspecies should be protected and preserved on all occasions, if for no other reason than what it accomplishes in destroying the dangerous serpents of the country.

Like the Indigo snake, the King snakes live in captivity for years, and are always gentle and inoffensive towards their keepers. They lay from ten to a couple of dozen of eggs, which, under proper conditions, hatch out in about a month and a half. The writer has had King snakes of several forms in confinement on numerous occasions, and has frequently noted their wonderful muscularity; it is no wonder they possess the power to strangle to death the biggest rattler that ever lived.

Some of our handsomest serpents are the big, harmless, and elegantly colored Rainbow snakes, as the Red-bellied



CORAL SNAKE

Fig. 10. Coral snakes, also known as "Harlequin Snakes," are brilliantly colored species, the bands being black, orange, and rich vermilion. It is a somewhat venomous species, and a few deaths are recorded from its bite. They are more or less abundant in Florida; the one here shown is the western form.

and the Rainbow of the southeastern sections of the country. These are species that reach nearly fifty inches in length, and are burrowing forms with respect to their habits. The writer has captured species of the Red-bellied snake in Louisiana, one of them being nearly sixty inches long. It was a fine purplish black on its upper parts, and blotched with a splendid vermilion red on the belly. Its tail ended in a sharp, needle-like spine, which the negroes about New Orleans called a "sting", and the reptile itself a "horn-snake". They contended that it strikes with its tail, and that a prick from its sting is invariably fatal—all of which being utterly false. They live along the wet and swampy bayous, often under old logs or boards which have long laid undisturbed near the water, where it is wet and boggy.

A long chapter might be written about our Hog-nosed snakes (*Heterodon*), pretty specimens of the young of which are presented in Figure 9. They possess the habit of feigning death, and do the trick quite as perfectly as the oldest 'possum that ever tried it. This species is also known as the Puff or Spreading Adder, as the Sand Viper or Blow Snake, and as a Flat-headed Adder. They are entirely harmless, and will not even bite when teased to do so, while at the same time they are the most dangerous looking and venomous appearing snakes

we have in our entire snake fauna. Ignorant persons and boys slay them on sight, and brag of the achievement long afterwards. This is a shame, as not only do they feed on toads and frogs, but are most interesting animals to study. When they play "dead", they roll over on their backs; and one may throw them about and handle them in the roughest way—they will keep up the hoax. Doctor Ditmars says he carried one about by its tail for half an hour on one occasion, and it remained as limp as a rag; he adds, however, that it may be led to betray itself "if placed upon the ground on its crawling surface. Then,

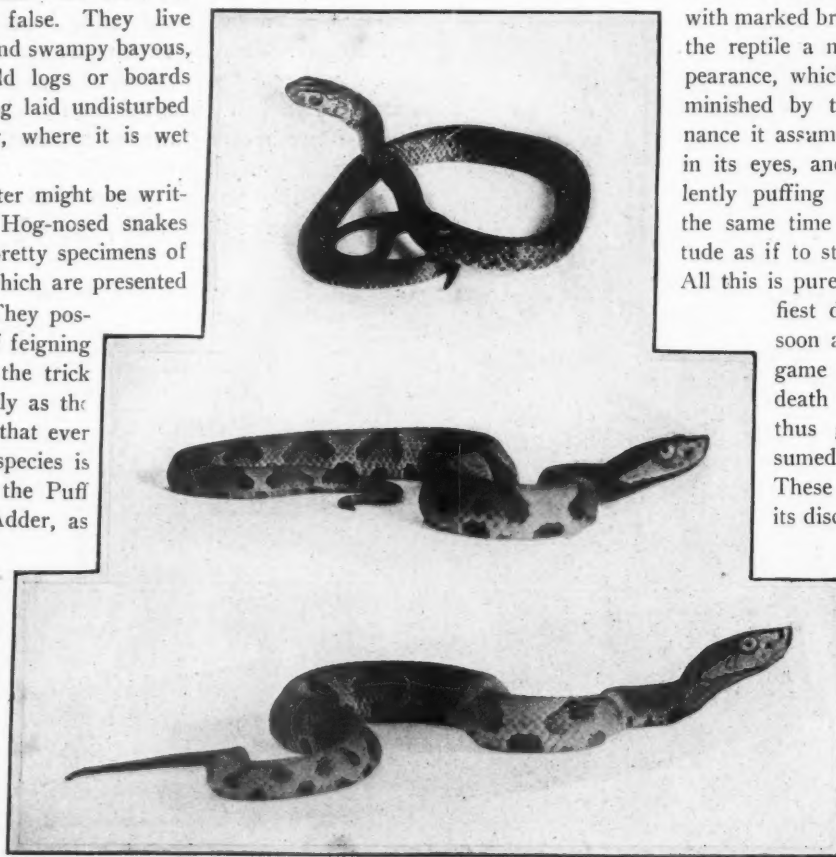
like a flash, it turns upon its back again, and once more becomes limp and apparently lifeless. It appears—according to this creature's reasoning—that a snake to look thoroughly dead should be lying on its back."

Being thick-bodied and somewhat sluggish in movement, it is very difficult for the Hog-nosed snake to make its escape when overtaken in the open. The writer once confronted one on a wide, dusty road in the country. In an instant it blew itself up, and flattened out its entire body, including its head and neck—the latter parts being at least three times their usual width. This causes the

colors of the neck to stand out with marked brilliancy, thus giving the reptile a most dangerous appearance, which is in no way diminished by the savage countenance it assumes—the wickedness in its eyes, and its habit of violently puffing out its breath, at the same time assuming an attitude as if to strike, like a rattler. All this is pure bluff of the bluf-

fiest description; for as soon as it finds that the game fails, it feigns death immediately, and thus gives all the assumed ferocity away. These antics often cause its discoverer to dispatch

it with a big stone or heavy stick. At the bottom, a Puff Adder is really a most gentle snake, and one need have no fear of picking it up in the midst of its antics of playing the part of one of the world's most deadly vipers,



YOUNG BLACKSNAKE (UPPER) AND COPPERHEAD (TWO LOWER)

Fig. 11. Note the gentle appearance of the young blacksnake and its feeble attitude when coiled, as compared with the venomous Copperhead, where, in the middle cut, it is shown in the attitude it assumes when preparing to strike. Such traits appear in snakes at a very early stage of their existence.

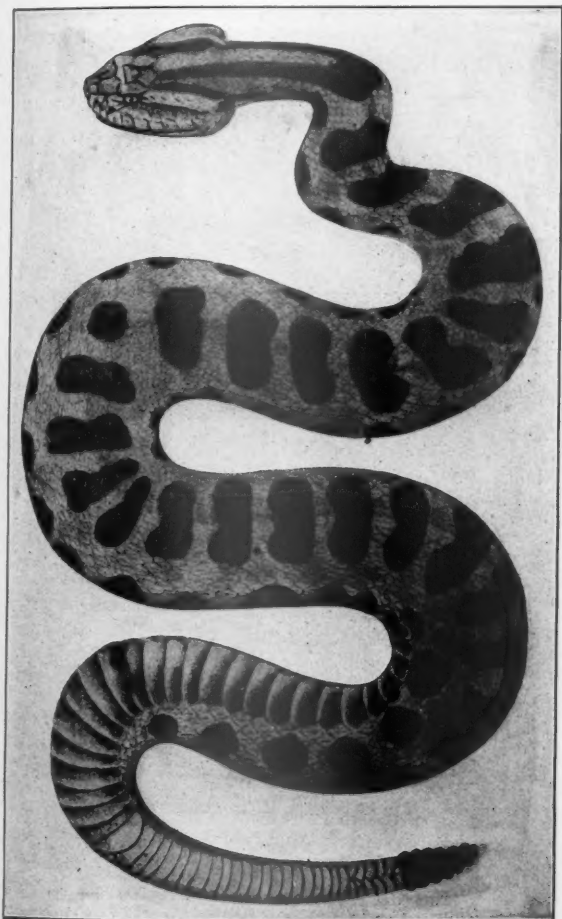
with fangs an inch long, having on hand ready for injection a full fluid ounce of the deadliest venom known to all snakedom!

Before passing to the venomous snakes proper, it may be pointed out that we have a limbless lizard in the country known as the "Glass snake" (*Ophisaurus ventralis*) (Fig. 7); but as this is in no sense of the word a serpent, space cannot be devoted to its description and history, attractive as both are to any one interested in our animal fauna.

The Harlequin or Coral snakes are known as the Ela-

pine Poisonous Snakes, as the principal genus is the genus *Elaps*. The common one (*E. fulvus*) ranges from North Carolina to southern Mexico, and is a brilliantly colored species. It is beautifully ringed with bands of black, yellow and red, and the Sonora Coral Snake from Arizona has the same general appearance, though the arrangement or sequence of the bands or rings are different (Fig. 10). These snakes are dangerous, and the bite of one of them may prove fatal to the human species. This result does not always follow, however; for the writer, when an Associate in Zoology of the Smithsonian Institution, many years ago, examined the thumb of Mr. Horan, the then superintendent of the Museum, shortly after he received a severe bite from a large and healthy Coral snake from Florida; hardly any inconvenience followed as a consequence. However, the thumb was sore for fully a week after the bite was inflicted.

Coral snakes live underground, and are often plowed up in old fields in Florida. They live largely upon



A MOST VICIOUS SERPENT—THE PRAIRIE RATTLER

Fig. 12. This cut was copied by the writer from the old Report of the Mexican Boundary Survey. The snake represented is a most dangerous and venomous reptile—one of the worst of the genus. It coils quickly, and strikes at an enemy with wonderful energy.



YOUNG OR BLOTCHED CHICKEN SNAKE

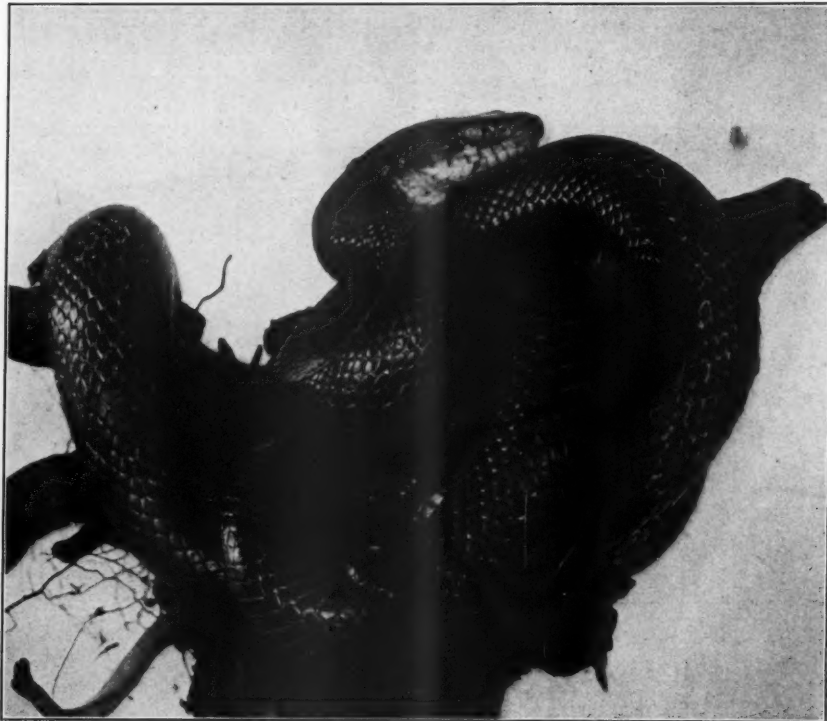
Fig. 13. A specimen taken at Great Falls, Maryland, (1916), a species said to heretofore only occur as far north as northern Virginia. A non-venomous reptile, which will, when fullgrown, occasionally catch and devour a chicken.

small lizards and snakes, are extremely vicious by nature, and one had better be careful in handling specimens. A few of our entirely harmless serpents so closely resemble Elaps that they readily deceive those not familiar with the color-pattern of both, and their behavior when handled. Coral snakes are oviparous.

There is no mistaking a viperine snake in this country, should one be at all familiar with the salient characters that any species of the entire group presents. They all belong in the family *Viperidae*, which is again divided into the *Viperinae*, or the true vipers of the Old World, and the *Crotalinae*, or "Pit Vipers" of the Western Hemisphere. All of our big, thick-bodied, venomous snakes are crotaline ones, or pit vipers. They are called pit vipers for the reason that they have a curious, deep, little pit in front of either eye. The pupil of the latter organ is like a cat's—that is to say, it is a vertical slit-like one, and not round, as in harmless snakes. These crotaline snakes also possess a flat, triangular head in the vast majority of them, that is distinct from the rest of the animal. With but few exceptions, the top of the head is covered with small, granular scales, those on the side having a definite arrangement for the species.

These serpents, as represented in our fauna, have, as a rule, long fangs in the upper jaw that fold backwards against the roof of the mouth when the latter is shut; they are grooved, and on either side connected with a special poison apparatus where the venom is secreted.

The use of the pit in the Pit Vipers is not yet known, although it has been very extensively examined by some



A LARGE BLACK SNAKE IN THE FIRST STAGES OF SHEDDING

Fig. 14. It is a most interesting phenomenon that snakes periodically shed their skins. This is the way a blacksnake looks when the necessity for doing so has arrived. Note the white skin that covers its entire eye, rendering the snake completely blind until the skin is shed.

scriptions generally prove to be quite vague and unsatisfactory, unless thoroughly illustrated by drawings and diagrams. The anatomy and physiology of a rattlesnake's head, for example, would make quite a little book.

Many articles and works have been devoted to the moccasins and rattlers of this country, describing their geographical distribution, the number of species and their names, their habits and characters, their ecology and variations, and a

of our most competent comparative anatomists.

Our representatives of the Viperine group are the Moccasins and the Rattlesnakes, the former having two species, namely, the Copperhead and the Water Moccasin, while in the latter we find about a dozen species of rattlers.

In many books devoted to our snakes will be found excellent descriptions of the poison fangs, the nature of the venom, the anatomy of the entire apparatus, and the treatment of snake-bite, each one of which subjects would require an article to itself for adequate description. Such de-

great deal more; but so extensive is this literature, and so important withal, that it is quite impracticable to select any part of it for a short article like the present one, without neglecting some other part of equal value and importance, thus laying the writer open to the charge of being ignorant of the parts not referred to in the de-

A SIX-FOOT BULL SNAKE FROM TEXAS

Fig. 16. Many names have been given this big, harmless snake, the one of Bull Snake being widely bestowed upon it. Through a modification of one of the structures of its throat, it can, in forceful expiration, make a sound like the bellowing of a bull, or distant thunder. This specimen is shedding; its new skin of black and yellow will shine like porcelain, and the reptile be one of great beauty.



scription. The writer has had many experiences with moccasins and rattlesnakes in many parts of the United States. In a few instances he has had some narrow escapes where he has been far removed from surgical aid, beyond what he could do for himself—sometimes with

none of the life saving appliances at hand.

On one occasion, when attached as surgeon to a regiment of United States Cavalry operating against the Sioux Indians in Wyoming, he came within an ace, probably, of losing his life from the bite of a Prairie Rattler. After a hard day's ride of over fifty miles, the column went into camp on a broad, level and treeless prairie. The "A-tents" of the officers were, as usual, immediately pitched. In the writer's tent his saddle was placed on the ground to serve as a pillow, and, the weather being cool, a couple of army blankets were spread for his use, the occu-

pant to get between them, one being next

the ground, the other to serve as cover. Placing a loaded carbine on one side and an army revolver on the other, the command's surgeon was soon sound asleep between the aforesaid blankets.

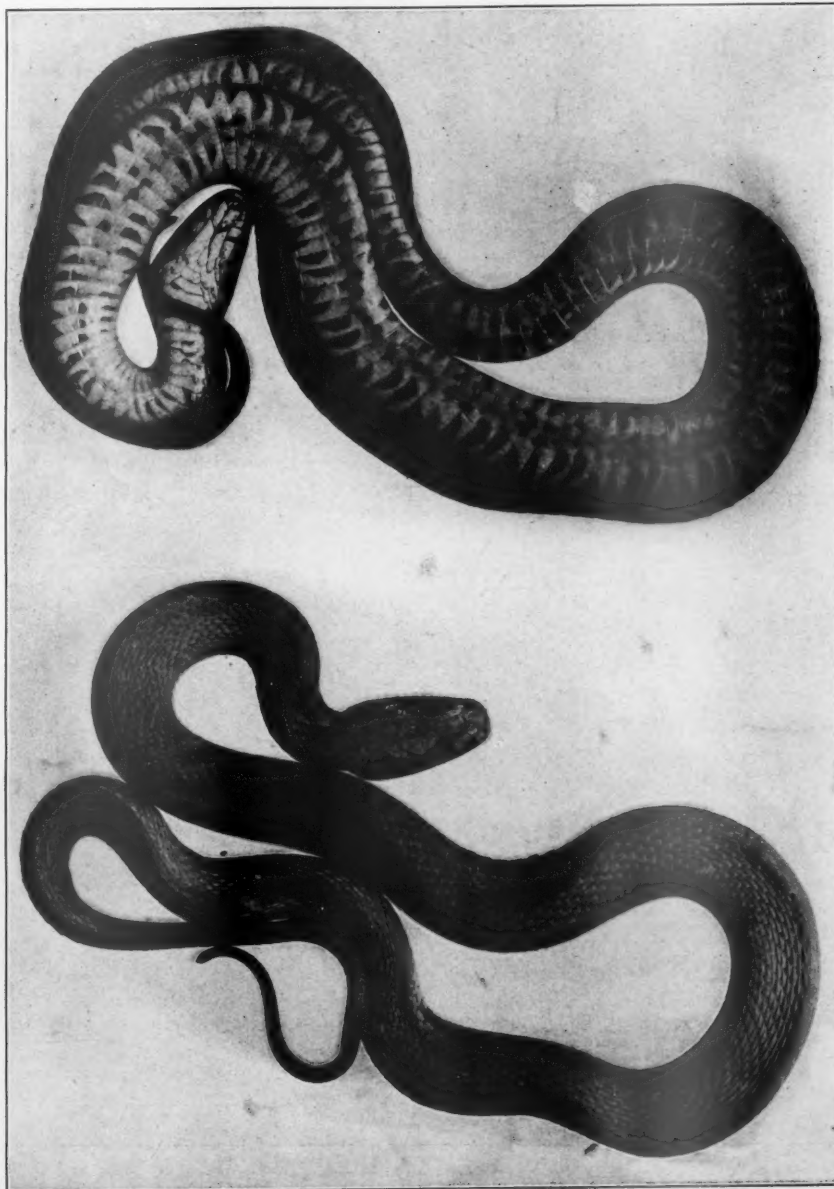
The camp gradually quieted down, and many were enjoying a well-earned rest after the day's march. Pres-

ently the writer became conscious of a peculiar heaving on his chest, with a sense of some few pounds' weight there. Without making any movement, and cautiously opening his eyes, he was confronted with a big Prairie Rattler coiled on the blanket within a few inches of his

face. The serpent had assumed the usual attitude prior to striking; its head was flattened and moved deliberately backward and forward; its eyes possessed a most vicious gleam, and the movement of its belly muscles could be distinctly felt through the blanket.

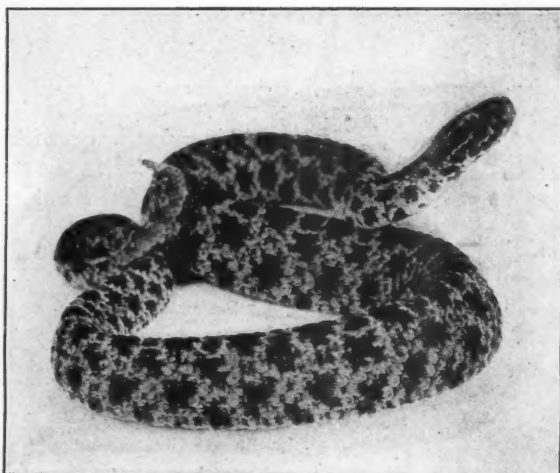
The position was one demanding great coolness, deliberation and tact. The bite, if given, would be received in the face, and all hope of saving life would be out of the question. All that the writer could do was to whistle to this snake in a peculiar way, in that it might charm it, as it were, and at the same time summon one of the field hospital attendants from without.

Fortunately this ruse succeeded, and in a few moments a young attendant appeared at the door of the tent. At first he was horrified at the plight of his commanding officer, but soon recovered his composure. Between closed teeth, and in a low, monotonous tone, the writer directed him to send two cool men of the Headquarters party to the



BROWN WATER SNAKE, THE LARGEST OF ITS KIND IN NORTH AMERICA

Fig. 15. A big, ill-tempered fellow belonging to a group of perfectly harmless snakes. (Upper cut as viewed from below.) Potomac River swarms with this species of snake, especially along the Virginia shore. This is a six-foot specimen.



SMALLEST RATTLE SNAKE

Fig. 17. This Pigmy Rattler (*Sistrurus miliarius*) was captured in Florida by Mr. F. W. Walker, and photographed from life by the writer. It is of an elegant gray color, beautifully marked with large black blotches down the back, with a series of smaller ones down either side; there is a reddish streak on the back of the head.

tent. They came quickly, and, in the same low, monotonous tone of voice, one was directed to step very deliberately where the saddle lay, the other to remain at the foot of the blanket at the door of the tent. With the greatest possible deliberation each bent down together, and catching the four corners of the blanket, they, with a simultaneous swing, sent the snake skilfully through the door of the tent, out onto the prairie, where it was, in a few moments, shot and cut into mincemeat.

Little sparks from bonfires,
Caused by a careless hand,
Make our giant forests
Into devastated land.

A little care and forethought,
Administered now and then,
Will save our mighty forests
For the benefit of men.

—*Daily News, Intermountain District.*



National Photo **FOREST PROTECTION WEEK CELEBRATED BY DISTRICT SCHOOLS**

SENATOR FRANK B. WILLIS, of Ohio, spoke to two thousand school children in Rock Creek Park, Washington, D. C., at the American Forestry Association's demonstration for Forest Protection Week, following President Harding's proclamation. Mrs. Susan S. Alburts, of the Nature Study Department of the Washington schools, was assisted by Smith Riley, Park Forester, and P. J. Joyce, Park Superintendent, in staging the program. Alton Bishop and Barry Bakersmith, of the Ross School, made a "living picture" of the Berryman Cartoon in the *Washington Star* as one of the fea-

tures of the program which follows: Song, "America"; Harding's Proclamation, Granville Lief, Central High School; address, Senator Frank B. Willis, of Ohio; "Trees," (Joyce Kilmer), Paul Lewis, Johnson School; "The Song Sparrow," Everett Johnson, Powell School; forest guide rules, Dunbar Forsythe, Cooke School; park pledge, Alton Bishop and Barry Bakersmith, Ross School; song, "America the Beautiful"; salute to the flag; dismissal, "There's a long, Long Trail." To Elaine Hartley was awarded a prize of \$10 for making the best copy of the Berryman "Keep the Parks Clean" cartoon.

THE MEMORIAL TREE

BY CHARLES LATHROP PACK

(From an Address at the New York State Institute of Applied Agriculture, Farmingdale, L. I., May 25, 1921.)

I AM glad to be with you here, my friends. We like to talk together about trees. The trees could tell us much, if they could but speak our language. I like to remember there are trees living in California that discovered America before Christopher Columbus did. Some trees in Africa could perchance tell us of the things they saw and gossip about the pranks of the Queen of Sheba when she visited King Solomon's mines. Trees still living in England very likely sheltered some of the cohorts of Caesar.

Trees have saved the world on two great historic occasions. The trees of the Ark saved life on the earth from destruction. At the Redemption of the World, when Christ died that we might live—and live better—the tree of the Cross was a part of the greatest event of history. So it is very fitting that, like others, today you dedicate trees to commemorate our part in the World War.

This international tree you plant here today is significant indeed, placed as it is in the soil from allied countries and different states of this country. The men you honor with this living growing memorial came together at freedom's call from the ends of the earth. Many have returned again to their places, but some did not return.

Therefore this tree, nurtured by the soil of these many lands, typifies, to my mind, the bonding together of those who died and those who live. As from this soil its roots send forth life so from the sacrifice of those men you honor today there continues to live in the world an idea worth fighting for.

In the ever renewing life of this tree each year the call those men answered is ever kept before us. An

oak it is. In the oak we find sturdiness, steadfastness, strength, all combined as we found it in the characters of those men who asked nothing for themselves, but gave all for others.

Here we have, as Kilmer sang, "A tree that looks at God all day and lifts her leafy arms to pray." As this tree will stand through the years in memory of them, so let it always remind us that we have a task; the task of helping to make this country just a little better place in which to live. They gave their lives to keep what we have and now let us go forward together and ever strive to erect that greatest of all memorials—the better country. Let us every one do our part to make it not just a land of free people, but a country of real folks. That is all the memorial they would ask could they but choose. And speaking of memorials let us not forget that millions of trees have given their lives for this country. That their sacrifice has meant the building of millions of homes, the progress of thousands of industries, the very life of the nation.

This sacrifice is growing every day, every year and yet—what are we doing to memorialize, if I may so express it, these trees? Are we planting trees in their place? Very few, far too few. Are we encouraging natural regrowth of other trees in our forests? Far too little are we doing so.

Let me say in all seriousness that the future life of the nation depends upon our replacing millions of trees which gave their lives to the upbuilding of our country. Forests must be restored, growing forests must be protected. Let us carry the memorial idea to a very practical conclusion, and in place of forests that are gone, let us grow new forests and protect the future of our country.

A "ROOSEVELT PINE" FOR ROOSEVELT'S SON

WRITING to her mother in Washington, Madame Hugli-Camp, of Berne, Switzerland, says:

"Here in Geneva there is a man who can only be described as a character, with a capital 'C'. His name is Henri Correvon, and he lives solely for his plants. His work on Alpine flora is standard and has been translated into all the important languages. In the midst of his garden, which is a marvel of curious and beautiful patches of red Alpine roses, white edelweiss and blue gentians, he has constructed a bit of crumbling old wall, and this he uses to teach the world how to beautify the remains of a vanishing past. In every crevice he has put a tuft of flowering plants and the result of this 'Garden in the Wall' is rare and beautiful. The little man himself is practically on wires, and after bounding from bed to bed in the garden, he swiftly led me to, where two young silver pines were growing. 'These are my Roosevelt Pines,' he told me

proudly, 'raised from seed the President gave me, and up there on the side of the Saleve there is now growing a vigorous grove of them, which I planted there at this same time.' In *Asia* magazine for January I read how Meyer, the plant explorer, placed a little Chinese pine on the grave of our Minister to China, W. W. Rockhill, the man who had helped him to procure so many useful Chinese plants for the United States. It occurs to me that it would be a beautiful and appropriate thing to get from Monsieur Correvon a 'Roosevelt Pine' to plant on the grave of the great man's hero son in France. Is the idea practical and can it be laid before a committee who will carry it out? I will here and now answer for the ready acquiescence of the character with a capital 'C'."

AMERICAN FORESTRY is glad to give endorsement and publicity to Madame Camp's suggestion.

FOREST GUIDE DEPARTMENT

SOLAN L. PARKES, EDITOR

CAMPING

AS I started to write this article on camping, I began to feel crowded between the floor, walls and ceiling of my office. I longed for the open outdoor life, and immediately left for one of my old and favorite camp sites, where on a bluff, fully fifty feet above the shore line of a lake, I sat down with my back placed against the soft side of an aged hemlock, thinking of the camps of the past that I had, sometimes with but a friend or two, and of the camps of larger size, where, having hundreds of boys under my care, I conducted schools of agriculture, horticulture, forestry, etc. I felt gratified that in many years of experience, I had never been compelled to call a doctor for any ill, nor was I ever so unfortunate as to lose a single life from any cause.

I came to the spot where I conducted one of my first camps. Seated on the bluff overlooking the lake, where knowing nothing would disturb my train of thought, except that I could hear the waves lapping against the shore line, see a butterfly with brightly colored wings floating by, or hear the chirping of a chipmunk, when

your camping trip that you are looking forward to, your equipment should be such that you will be absolutely as self-reliant as though you went camping all alone.

The let-me-have-your-comb-habit is a bad one. Borrow nothing. Dandruff, or some other skin disease, may be a part of the lender's personal head adornment.

The same holds true if soap, washcloth or towel is a community affair. Skin diseases may be passed along by this method very easily.

Soap, a comb, washcloth and towels in sufficient number should be your first concern, for personal cleanliness must be your first rule.

Your second concern should be foot comfort, for you will do lots of hiking. Clean stockings should always be waiting for you, as well as dry shoes, for what gives one more comfort than to jump into a pair of shorts, slip on a pair of golf stockings and a pair of tennis shoes or sneakers after a busy day either in play or activity of any kind.

The Editor suggests that all organized groups, whether Boys or Girls, Young Men or Young Women, add the Forest Guide Program to their program; read this department carefully every month; study the advice and information it gives, discuss it, and work out suggested activities, as it is the desire of the Editor that conservation be better understood by the youth of America.

it discovered me in what it considered its domain. At the very edge of the bluff is a deciduous or broad-leaved tree, on which I saw, flitting from one branch to another, a bright-hued cardinal. On a small spur or peninsula, running into the lake, stood a fisherman, slowly trolling his line to attract some finny citizen, while around a bend was a canoe, slowly gliding toward the place where I was sitting. The ozone of the forest filled the air. All in all, it gave one a glorious feeling of contentment.

In such environments as these, it seems to me, somehow, that God intended mankind to live. For one of the first things we read of in the Bible, is the Garden of Eden, where trees are mentioned, together with all else needed to bring happiness.

In that Garden of Eden camp, there was a camp rule, and every camp director, or those that have charge of camps, must govern by rule only, if your camp is to be a success, for, unless this is done, your camp will be a failure.

* * * *

IF you are going to camp this year, do not wait until you are ready to start to make your plans. Begin now. To be assured that you will get all the pleasure out of

Make it a point to have a sufficient number of blankets to keep your body warm. For cool nights come, and often follow a day of rain. The number of blankets depends on the climatic conditions you will camp in. After you have listed and procured that part of the equipment that will assure you bodily comfort, look over that other part you will require for pleasure.

Fishing tackle may have to be repaired, or some parts of it may have to be replaced. Is your Kodak in working? How about your individual drinking cup? Do you have a strong pocket knife? A few good books will help you greatly to pass away an hour now and then.

A good plan is to make up a list of all the equipment you would like to have. After you have the list completed, take a pencil and strike off the list everything you will not need. Then at the very bottom of the list, add needles, thread, extra buttons, shoe laces and a few safety pins.

Your camp shoes should be bought with care. Comfort and wear should both be considered.

Practice to make up your blanket roll. Your soldier brother will be glad to show you how, and remember that you may bring back more than you take along, for you

will always find something that will be interesting to show to your friends when you come home.

* * * *

WHEN you are all packed up and ready to go, plan to make the camp a success, for you will have to play a part.

Perhaps you are going to a camp all built up, or you may go with a troop and build your own. It makes no difference which. It will be your duty to obey the camp rules. Do not bother about the other fellow. Let the one in charge discover the shirker.

The best care should be taken to select a site that has good surface and air drainage. Low, flat meadows look inviting, but are not always the most comfortable on hot, sultry days and nights, while on rainy days the surface often becomes slushy. The early evening dew, and the dampness remaining for a long period in the morning, caused me to avoid meadow sites long ago.

Remember that the other fellows have all the rights in camp that you have. Do not forget to respect them, as you want yours respected. Play your part in camp like a man. Never shirk, for each one will have duties to perform. Some of these may not always be pleasant, and it is up to you, the same as it is to the other fellow, to cheerfully perform all camp duties.

I am going to tell you something that may be good to know. It is only on a camping trip that you get to know the other fellow and that he gets to know you. Too often

you will make of them. Several suits of underwear as well as a bathing suit, should be included, however.

* * * *

LET us for the time being forget the above and talk of what you are going to do.

Swimming—sure; and all other camp pleasures you will have; but you want to learn a lot about trees, birds, insects, flowers and the wild animal life that will be a part of the camp population.

First, buy a well-bound notebook. Write with ink on the front inside cover:

Your name and address.

1921 Camp, located at.....

Arrived (give date)

Left (give date)

At the top of the first page write Trees; on page twenty, Birds; page forty, Insects; page sixty, Wild Animal Life; page eighty, Wild Flowers; and so on.

As you become acquainted with a new tree, write all about it in your notebook. Color of bark, rough or smooth, kind of leaves or needles, where it grew, near water or if on a mountain top. If you do not know, find out if acorns grow on the willow, maple, beech or oak tree.

Find out if the robins, martins, or cat birds like to fly above the water. Why? Study the habits of the birds and what they eat.

It will be interesting to find out if the lily prefers to

Solan L. Parkes:—

Great benefit to forest protection in Pennsylvania has come from the organization and operation of the Forest Guide movement. There are now approximately 11,000 Forest Guides in Pennsylvania. They have measured up fully to their pledge to help protect the forests of the State from fire. The Department has had not only their interest, but very substantial assistance in keeping fire out of the woods and in extinguishing those fires which have occurred. It has remained for the organized youth of the State to display the interest, enthusiasm and effort in forest protection required to put an end to forest fires, and the spirit of the Guides has been contagious in the home, on the streets, and in the woods. We value their co-

R. Y. STUART,

Deputy Commissioner of Forestry for Pennsylvania.

it develops that someone spoils a camp by not playing the game the fifty-fifty way. As a camp director, I never wasted time to teach a shirker what was what. It was of more concern to me to see that the greater number were happy. It never pays to jolly a grouch. It does pay to keep the greater number in good spirits.

Cleanliness must be the first camp law. Unsanitary conditions bring disease, discomfort and ill temper. Camps should be policed at regular intervals.

Your food should be of the best and receive the most careful attention. It should be selected with care and proper storage provided.

I did not mention your outer garments, for this may depend on your purse, the length of your stay, or the use

grow in dry, hard soil, or where it is damp, or in water.

Follow animal tracks. Study their habits. Find out what they eat. Which sleep by day and which by night?

There is a lot to learn.

* * * *

I HAVE always found that campers want to be busy. We built a road into a camp, in fact, a good auto road. We built a rustic fence along the lower edge. We selected trees with broken tops, some that were dead, others where there was over-crowding, and we took the poorest always, for this work.

Result—The Guides learned how roads should be

(Continued on Page 480.)

ACTIVITIES OF THE AMERICAN FORESTRY ASSOCIATION FOR JUNE, 1921

President Charles Lathrop Pack called upon President Harding on June 22, and had a conference upon forestry matters, and upon the necessity for legislative action toward securing a National Forest policy.

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Directors of the Association attended sessions of the forestry committee of the Chamber of Commerce of the United States in New York City on June 27 and 28, to give information on the forestry situation in various parts of the country.

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The Stark County Lincoln Highway Memorial Association, of Canton, Ohio, reports the planting of 820 trees and shrubs near the Highway in Stark County, and generously acknowledges the effort as largely inspired by the American Forestry Association.

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The Pennsylvania Railroad System was furnished with one hundred reprints of the American Forestry Association's bulletin on Forest Protection Week, which included President Harding's proclamation urging the protection of the forests.

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The Universal Engineer Magazine republished in May an article on "Wood in Industry" by Mr. Hu Maxwell from the AMERICAN FORESTRY magazine.

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Forest Protection Week as proclaimed by President Harding gave the Association additional opportunity to emphasize the need of fire protection in the forests which it did with a series of forest fire articles in the newspapers. These were printed from one end of the country to the other.

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"American Industries," the manufacturers magazine, printed an extended article on the need of a National Forest policy. The editor informs the Association its data was so well prepared that the forest policy article was the only one used in the big convention number that did not touch on that meeting.

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"The Banker-Farmer" published an article from the Association on the need of a National Forest policy and its importance to industry and to the banker of the smaller towns.

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The South Bend Tribune asks for material for conducting tree planting campaigns which is supplied in series form by the Association. The editor congratulates the Association on the good work it is doing.

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The Permanent Builder requested the Association to send it an extended article upon a National Forest policy, to follow its stirring editorial endorsement of the Snell Bill.

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With the cooperation of the nature study department of the public schools of Washington, D. C., three thousand children gave a forest protection week demonstration in Rock Creek Park for the Association. Senator Willis was the speaker but the rest of the program was handled by the children.

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Basing its plan of work upon advices of the Association the Oklahoma State Forestry Association was organized in June and will at once start an active forestry campaign in that State.

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The Secretary attended an important meeting of the Pennsylvania State Forestry Association at Harrisburg at which were discussed plans for the creation of the Allegheny National Forest in Northwestern Pennsylvania.

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The Board of Directors of the Association held two meetings in New York City to discuss forestry measures, and also the development of the magazine and the extension in various ways of the Association's work.

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Increased interest in forestry resulted in the Association securing over 1300 new members during the first six months of the year.

FORESTRY IN PENNSYLVANIA

MOST successful was the meeting of the Pennsylvania Forestry Association at Pittsburg on June 16 and 17; successful in concentrating attention on the need of acquisition by the Government of a forest area of 1,000,000 acres in the northwestern part of the State to protect the watershed of the Allegheny River, and successful also in emphasizing the progress of forestry in the State.

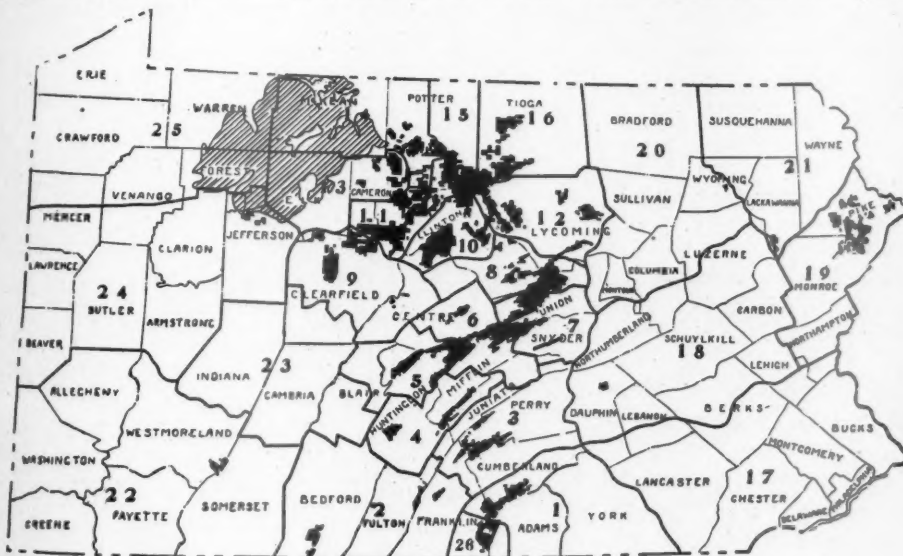
Dr. Henry S. Drinker, president of the Association, in opening the meeting said:

"Founded at Philadelphia in 1886 the association has for 35 years continuously labored to interest our people in the study of this question, so important to our comforts and to our industrial interests, and to impress upon our legislators and State officials their duty—to take efficient measures for the conservation and care of our tim-

berland by fire, and of reproducing on our State lands timber supplies for the future. And at the head of our Forestry Department we have Gifford Pinchot, a man who has given and is giving a life's devotion to the cause, and whose energy and trained and wise direction of the forestry interests of the State shows large results already accomplished and bear the promise and potency of great accomplishment in the future. The forestry question is one of great present interest to Pittsburg and the Pennsylvania Forestry Association has stood behind Mr. Pinchot in his successful effort before the legislature during the past winter to obtain the legislation asked by your Flood Commission and supported by your Chamber of Commerce, looking to the establishment of conditions at the head-waters of your streams to lessen and to do away with the floods that have done so much damage to Pittsburg at periods in the

past.

"Passing beyond the borders of our own State, we find the great Chamber of Commerce of the United States taking the same active stand nationally in regard to forestry that your Pittsburg Chamber of Commerce is taking in regard to your local needs. The National Chamber has appointed and formed an Advisory Committee of men versed in the various phases of the forestry question—Fire Protection, Reproduction of Timber, the Acquisition of



GOVERNMENT TO BUY 1,000,000 PENNSYLVANIA ACRES

The area in light grey in the northwestern section of the state comprises an area of forest land to be acquired by the Government to protect the head waters of the Allegheny River and to develop as a renewal forest. The areas in black indicate location of State forest land.

berlands and for the reproduction of timber on lands from which matured timber has been cut and used.

"For years in the early stages of the forestry cult it was looked on by many as being rather a fad of nature lovers than a matter of great financial and industrial importance to our State; but the great lessening in recent years of the available supply of timber, and its constantly increasing cost, in bringing home to our people the lesson that the early pioneers of the forestry movement, Dr. Rothrock, Dr. Elliott, and their associates, sought to enforce.

"Today we are fortunate in having as the Governor of Pennsylvania a man of large business experience and broad vision, who is doing all that the finances of the State will permit to support the State Forestry Department in its work of protecting our woods from destruc-

State Reservations of Timber, Timberland Taxation, and other matters—who are asked to make a nationwide study of the whole question for consideration by the National Chamber of Commerce and for reference by referendum to its many constituent Chambers throughout the country, with a view to formulating a national policy in regard to our National forestry interests, to be advocated before Congress and before the legislatures of the several States—a broad, important, patriotic movement, likely to be of great good to the country. The forestry movement has an importance and a momentum that is bound to bring forth great and useful results and you do well to give it your interest and support."

Addresses were made by Hon. John M. Phillips, a State Game Commissioner; E. K. Morse, of the Pittsburg Flood Commission; Gifford Pinchot, Joseph S. Il-

lick, George H. Wirt and R. Y. Stuart, of the State Department of Forestry; Dr. Filibert Roth, Professor of Forestry, University of Michigan; W. B. McCaleb, in charge of water supply for the Pennsylvania Railroad; Major E. A. Ziegler, of the State Forest Academy; Dr. J. T. Rothrock, the father of Pennsylvania's forestry progress; P. S. Ridsdale, Secretary of the American Forestry Association, and others.

What the forestry situation in Pennsylvania has been and is, is well told in a statement distributed at the meeting, which says:

"Pennsylvania's primeval forests were once the glory of the State. They are practically gone today. The annual forest product of Pennsylvania once exceeded in money value that of any other State in the Union. It is no longer a figure in the lumber market.

"Because these forests have been destroyed, we suffer a financial loss every year of not less than \$80,000,000. Sum it up thus:

For lumber which we buy elsewhere.....	\$50,000,000
For freight on that lumber.....	25,000,000
For loss in wages paid to labor.....	5,000,000
	<hr/>
	\$80,000,000

"Add to this the annual loss from forest fires, the frequent loss by destructive freshets, the closing of wood-working industries, and it would be a conservative statement to say that Pennsylvania's loss due to her vanished forests is not less than \$100,000,000 each and every year—as much as it has cost to conduct the State Government for two years.

"Until Pennsylvania again produces the timber required for home use, this drain upon the Commonwealth will continue. The very best home grown timber formerly cost from seven to eight dollars a thousand feet. We now pay \$53 per thousand feet at the mill, and the freight from Oregon to Pennsylvania in addition.

"It is estimated that Pennsylvania uses each year about two and one-half billion feet, board measure, of lumber, but is producing only about one-ninth as much.

"Pennsylvania could produce lumber for home use and have a considerable volume for sale to other states.

"Without wood, every leading industry in the State would be halted.

"Six million acres in our State are producing no crops, and are suitable for growth of timber only. To restore them to growing timber, first prevent forest fires, then replant them with useful forest trees. There is no other way by which we can furnish the timber our industries require, or can diminish the loss to our State that is caused by lack of growing forests within State limits.

"Our failure to begin restoration of our forests means hardship for those who follow us.

"The above is serious enough, but it is only a part of the

forest problem.

"If we had lumber of suitable kind, in proper shape, in sufficient quantity, given to us, without cost, and at the points in the State where it was needed, it would not produce all that we need for our comfort, health and happiness. Without living, growing trees on these unproductive lands, Pennsylvania would become progressively poorer and life would become harder.

"In ten years our supply of lumber from the Southern States will cease. That from the Northwest will end twenty years later and the United States must seek its supply from some foreign country. Every industry of this State is already suffering from lumber shortage due to high price, which will increase at the years pass.

"When a far-sighted organization like the Pennsylvania Railroad sends aviators to South America to explore forests for ties we know that the situation is serious.

"It is hard to prove that trees increase the rain or snow fall; but there is no doubt that large bodies of timber aid in saving what does fall.

"In the absence of forests, our permanent supply of water is becoming shorter. It is an established fact that to obtain a steady supply of water in our wells, we must dig deeper than formerly. And this is true over so wide an area, that it indicates very serious conditions in the future.

"Land under cultivation here usually freezes so hard in winter that most of the rain or melting snow runs off of the surface instead of soaking into the ground. The forest floor (*if fires be kept off*) is covered with leaves which retain the heat of the earth, and which, by their own decay, furnish heat so that the soil is not frozen. This allows the water to soak into the ground. It is, therefore, clear that our forests furnish most of the water that comes to us during late autumn, winter and early spring.

"There never can be a desert where there is a forest!

"Every business interest in Pittsburg and in the valley of the Allegheny demands that what water falls should be, so far as possible, under control to guard against damage from floods and to maintain navigation in periods of drought.

"Without an abundant supply of pure water, neither health, comfort nor decency is possible anywhere, and so far as we now see, the only possible aid that we can render in having and in retaining enough of it, must come through the forest.

"Forestry, therefore, concerns every home. A realization of this fact has at last become general. Over our entire State a new interest has been awakened. Your need of a large State Forest for Pittsburg is as great as that of Harrisburg or Philadelphia, and your claims upon the State for it are as great as those of the East, which have, in great measure, been granted.

OAKS FOR ORNAMENTAL PLANTING

BY F. L. MULFORD

IN the normal human being there is an innate love of natural objects, both animals and plants. The young child who has not been scared by foolish caretakers is interested in the small animals that come within its ken, and all expect children to want to pick the buttercups and

that large trees may be used for shade about the home.

It is fortunate that this is true as so many people are condemned to live in cities nearly all their lives, and of those who are so fortunate as to live in the country many live in regions where there are but few trees except those they bring about the homes.

In other cases the rich natural growths are destroyed to make way for farming, so that the farmstead, and occasionally a stream bank or a fence row are the only places where good trees may be seen close at hand.

Interest in these home plantings is greatly increased if the trees are selected with a view to their individual beauty and appropriateness for the locality, as well as to give an air of naturalness and comfort to the home surroundings. Too often such trees have been selected primarily because they were a trifle more rapid in growth than other kinds, or because it was the

style in the community. Less often trees have been selected because they were foreign to the region or the conditions and showed this markedly in some prominent



THE LIVE OAK

The magnificent live oak avenues of the South indicate that past generations did not hesitate to use this species despite the fact that it is slower in growth than some other kinds.

daisies to say nothing of the dandelions. It is only children who are brought up under sordid city conditions, or those who are brought up by people so thoroughly obsessed with material things that they continually crush the natural in childhood, that do not carry this love into mature years.

Though most people have in them the power of loving nature, yet because of lack of sufficient knowledge to really know a few plants and their characteristics, they do not have the interest and get the enjoyment they otherwise might.

Although it is an added enjoyment to those who know and love trees to be able to go out into the woods and fields, and even into the forests and mountains, yet much of enjoyment may be gained in city parks and on home grounds, especially where the latter are somewhat liberal in extent, so



THE WILLOW OAK

The willow oak holds its leaves well into the winter in the states near the Gulf of Mexico, but drops its leaves early in the section north of Washington and Louisville.

characteristic. In many of our American styles we have been prone to ape European models. In the recent past it has been more conspicuously true in dress than possibly in some other particulars. Our architecture is full of it, especially our home architecture, although there are a few well-adapted American types, as the colonial homes seen respectively in New England, in New York, in Pennsylvania, along the coast in the South and inland regions in the the South. For home ground adornment European plants have been much used and it was not until our American wild plants were taken to Europe and sent back to us that we really began to use them, and even now the native material is not often valued at its true worth for planting purposes. Among the best of trees for ornamental planting in this country are the native oaks. They are handsome trees, with species adapted to all parts of the country. They may appropriately be used on the home grounds, in parks, along country roads, and on city streets. The suggestion to plant oaks frequently brings as a response the statement that they are too slow in growth. There is a



PIN OAK AS A STREET TREE

While not as good a street tree as the red oak it is much better than poplars or silver maple. It thrives on heavy clay soils as well as on those much lighter.

germ of truth in this as the white oak and the live oak do not grow as rapidly as many other trees. The magnificent live oak avenues of the South attest the fact that past generations did not hesitate to use this tree because it was slower in growth than some other kinds. The symmetrical placing of specimens of them near some of the old houses indicates that they have been planted there. In many cases the arrangement of the trees is too regular to have been the result of placing the house with reference to trees already in existence.

Although the white oak has the reputation of being a slow growing tree and is much slower than many other oaks, yet it is about as rapid a grower as the sugar maple. But the sugar maple is much planted, even though it is widely known to be of slower growth than the silver maple.

The oak may be regarded as the most typical American tree. It is widely distributed throughout the United States, it being represented by one species or another practically wherever woody growth ex-



THE RED OAK

The red oak is a useful ornamental tree except in those regions approaching sub-tropical conditions or where rainfall is deficient and irrigation is not practical.

ists. It is represented by large growing species in the regions more favorable for tree growth, and in the drier parts of the country it is represented in the chaparral by dwarf kinds. The same species may take on different forms under different conditions. For example, the coast live oak of California, which is an entirely different tree from the live oak of the southeastern states, ordinarily attains a large size, but on the wind swept coast near Monterey Bay, California, it forms wedge-shaped bushes or small trees, with the sharp edge of the wedge towards the ocean from whence the strong winds come: The lower limbs on this side will be on the ground possibly almost buried by sand. The next limbs above will be somewhat shorter and most of their growth will be in the lee of the bottom limbs. On the other side of the tree the growth more nearly resembles an ordinary tree.

Although most American oaks are deciduous there are also evergreen and part evergreen species. The live oak of the southeastern United States and the valley oak and the coast live oak of California are evergreen. The laurel oak is practically evergreen near

the Gulf of Mexico but becomes deciduous farther north. The willow oak holds its leaves well into the winter in the states near the Gulf of Mexico, but drops its leaves early in the neighborhood of Washington and Louisville.

Of American trees the oak is one of the most worthy of consideration because of its strength, beauty and general worth. The white oak is widely distributed throughout the eastern two-thirds of the United States and is throughout its range a notably handsome and useful tree. In the coastal plain region from Norfolk to Galveston the name oak suggests first of all the live oak, which is quite different in form and general appearance from the white

oak, and yet gives the same impression of strength and dignity. In California the valley oak occupies a similar place to that occupied by the white oak and live oak in other parts of the country. Specimens of all these trees reach a large size. A white oak in the Friends' graveyard, at Salem, New Jersey, has a spread of branches of 123 feet. The Hooker Oak, at Chico, California, a specimen of the valley oak, has a spread of 130 feet and a girth of 27 feet. Live oaks of about the same size may be seen in Audubon Park, New Orleans, Louisiana, and in other parts of the Southern States.

For purposes of discussion oaks divide themselves

roughly into four rather distinct groups: First, those with large leaves and rounded lobes as exemplified by the white oak; second, those with large leaves and prickles on the ends of the lobes as exemplified by the red oak and pin oak. Both of these groups are widely distributed throughout the eastern half of the country. The third group are those trees with small leaves and mostly smooth edges as exemplified by the live oak and the willow oak, while the



THE BLACK OAK

This oak is difficult to distinguish from the red oak. They are similar in other respects and the black can be used under the same conditions as the red, and will give the same service.

fourth group includes the California oaks, the valley oak and the coast live oak.

The young leaves on the oaks were in most places this abnormally early season, large enough so that the form could be recognized. It was, therefore, a good time for those interested in studying the oaks, or those desirous of selecting a satisfactory tree for fall planting, to try to learn to distinguish the different kinds growing in their locality. As a help in this direction characteristic leaves of a few kinds are illustrated.

As already stated the white oak probably heads the list of desirable trees to plant, not because it is a better tree

than the live oak or the valley oak, but because it is adapted to so much wider range of territory. It is native as far west as Kansas, Nebraska and Oklahoma, and may be grown wherever sufficient moisture can be supplied. It thrives in western Oregon and Washington, but is not common near the South Atlantic and Gulf coasts. This is probably more due to soil conditions than to climatic conditions. Because of the excellence of the live oak, laurel oak and willow oak, which do especially well in this region, the white oak is not missed. It forms a broad rounded head when allowed to develop without being

crowded, its lower limbs extending horizontally without much tendency to droop.

Because of this and its slower growth it has not been used much as a street tree. Its bark is very light colored and somewhat rough. Its leaves have a tendency to hang on well into the winter. It is deserving of much more extended planting as a lawn and park tree than has been the practice.

The red oak is a useful ornamental tree except in those regions approaching sub-tropical conditions or where rainfall

is deficient and irrigation is not practical. Its leaves are large, dark, shiny green, and the lobes have prickles at the ends. Its foliage assumes a dark red hue in the autumn. It is a rapid growing tree, trees three years planted on the streets of Washington, D. C., having made a growth of four feet in one season. It likes heavy soils and responds to good care. It forms a large oval top and its branches are inclined to be upright. Its bark is dark greenish gray and smooth.

It is one of the few trees that thrive well close to the ocean, being one of a half-dozen that come in naturally

on newly formed islands along the Atlantic Coast. This suggests its use for all types of ornamental planting near the ocean and it may suggest its adaptability for use upon slightly alkaline soils. However, as it is not well adapted to semi-arid conditions this character would not be likely to be of value as the application of sufficient water to insure its growth would probably eliminate the alkalinity.

It is admirably suited for lawns and parks as well as for roadside planting and city streets. It should be planted instead of silver maples, where the use of the latter is contemplated. The red oak and the black oak are rather

difficult to distinguish from one another in many of their forms, but for all practical purposes there is no need for such distinction.

The pin oak is another of the large-leaved oaks with prickles. It is often found in more moist situations than other oaks in the northern states and so is sometimes called swamp oak. Its leaves are more finely cut than those of the red oak and are apt to be smaller. They are a dark glossy green, turning a brilliant red in the fall, and usually hang on all winter after



THE WHITE OAK

Although the white oak has the reputation of being a slow growing tree, and is slower than many other oaks, it is as rapid a grower as the sugar maple.

turning brown. The pin oak makes a large oval-headed tree, but the lower branches have a tendency to droop with age. It is handsome, giving a more airy general effect than the red oak. It is especially adapted to lawn and park planting, and also for country roads and city streets, although for the latter purpose its value as compared with the red oak is over-rated; but it is much better than poplars or silver maples even as a street tree. It thrives on heavy clay soils as well as on those much lighter.

The scarlet oak is somewhat intermediate in foliage be-

tween the pin oak and the red oak, and is found native with the others except on the lowest ground and is especially abundant on gravelly or drier soils. It is a round-headed tree with branches spreading without a tendency to droop. The name comes from the brilliancy of color-



THE PIN OAK

This oak can readily be identified because its leaves are a dark glossy green, and also because they usually hang on all winter.

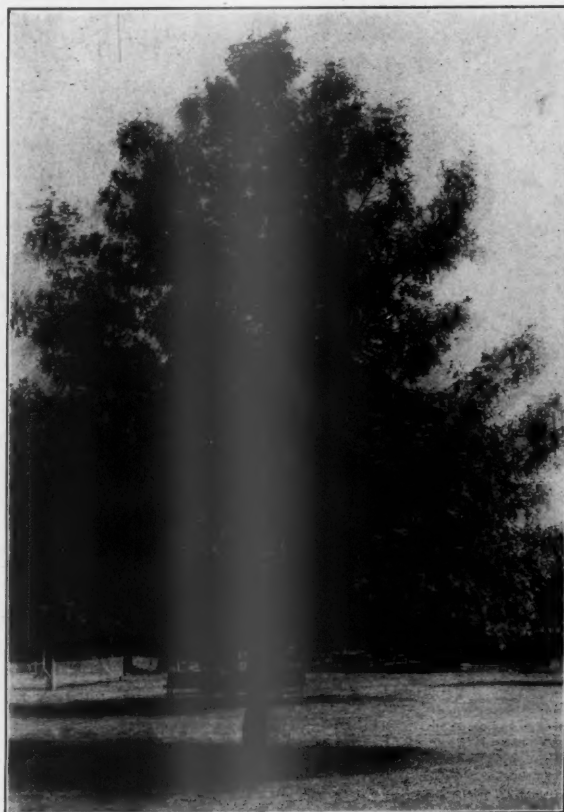
ing of the autumn foliage. Its leaves do not hang to the tree after maturity as in the case of the pin oak. It is a desirable tree for lawns, parks and roadside planting. It has been but little used as a street tree and possibly may not be adapted to that use except on gravelly soils.

The Spanish oak is another good tree with foliage of the same general character as the red oak. It is not native as far north as the red oak, and is more common in many parts of the South. It is a more upright tree, with an oval top. It seems to withstand city conditions well and should be tried as a street tree. It is useful on lawns, in parks and along country roads.

The live oak is the most striking representative of the small leaved group and as already indicated is the most important shade tree near the coast from Norfolk to Galveston and beyond. When mature it is a broad spreading tree and when grown on lawns or in parks the branches often come close to the ground, although owing to its good proportions they really are not as low as they at first appear. The leaves are about one

and a half inches long and have smooth edges. They are sometimes broader near the apex. The tree being evergreen is a little harder to transplant than the other southern oaks but it is well worth the extra trouble. Like all oaks they respond to liberal feeding and good care. It is good alike for lawns, parks, roadside and street planting, but on account of its size should be allowed plenty of room. The foliage often becomes dull and rusty before the new leaves appear.

The next most important of the southern oaks is the willow oak. The name comes from the similarity of the leaf to that of the willow. It is also called water oak which name it shares with two other trees, the laurel oak and the true water oak. In a few places it is also called pin oak. It is a large handsome round headed tree native from eastern Texas to southern Maryland and up the Mississippi Valley into Kentucky. It is one of the most important shade trees in all this region even including those portions where the live oak thrives.



THE SCARLET OAK

This is not adapted for a street tree but it does very well on gravelly soil and is desirable for lawns, parks and roadside planting.

It is suitable for lawns, parks, streets, and roadsides. Most of these trees are dug from the woods and swamps in not too careful a manner and the top is cut off so that the tree when set looks like an overgrown beau pole 12 or 15 feet high and often two inches through at the

top. If propped to prevent swaying in the wind this method seems to be quite successful. A disadvantage in the general practice, however, is that no distinction is made among the three trees known as water oak, and all may be mixed in the same planting. Out of leaf these trees when



LEAVES OF THE WATER OAK

This is called the weed among the oaks, and the tree should never be planted in place of the willow oak, or the laurel oak, both of which are better trees.

small all look very much alike and even when in foliage there is a similarity in general appearance, as may be judged by a comparison of the illustrations of the foliage. The laurel oak is more nearly evergreen than the others and the water oak is much shorter lived and apparently more subject to attacks of mistletoe.

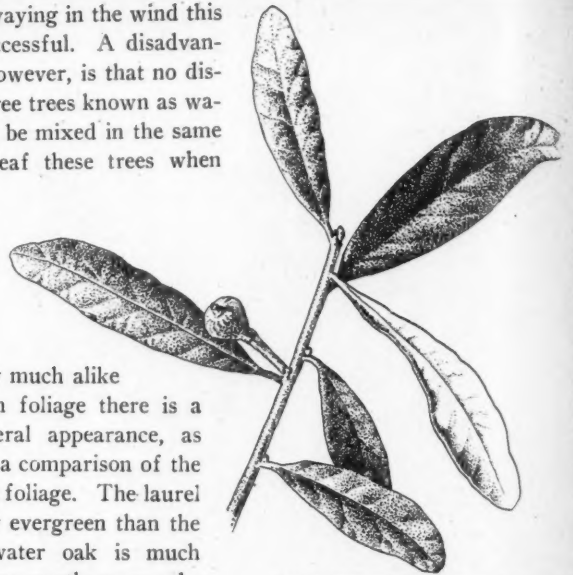
The laurel oak is found where the live oak is common and in adjacent regions. Its foliage is larger than either of the oaks just discussed and often holds on the tree until the new foliage starts. It is especially appreciated in Florida and adjacent parts of Georgia and Alabama. A form of it common in the neighborhood of Darlington, South Carolina, has been

introduced into cultivation as the Darlington oak. It is an excellent variety. The tree is large, oval-headed and upright. It is adapted to use on lawns, in parks, and on roadsides, and should be tested on city streets.

The water oak is the weed of the oaks. It is much poorer for ornamental plantings than either of the other two trees with which it shares its name, that is the willow oak and the laurel oak. It should not be planted as it has no advantages over the two other trees and does have disadvantages.

The two principal California oaks are the valley oak and the coast live oak. Both have two kinds of leaves, one being like small holly leaves and the other being about the same size, but with a smooth edge. Both kinds are on the same tree at the same time. The coast live oak is native to the western slope of the coast range of mountains, while the valley oak is native to the Sacramento and San Joaquin valleys. Both are large handsome trees, each suited to planting in the region to which it is native. The valley oak can be used close to the coast, but it is questionable whether the coast live oak would succeed in the greater range of

temperature and less humid climate of the valleys. They are adapted to lawn, park, and roadside planting and apparently are succeeding as street trees in their respective regions. Success in transplanting is most likely by using only plants grown in pots or cans. They need careful watering until well established.



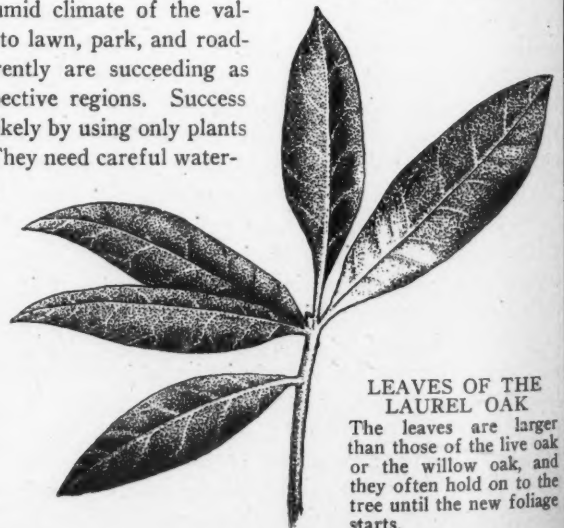
LEAVES OF LIVE OAK

The leaves are about one and a half inches long, and have smooth edges and are sometimes broader near the apex.



LEAVES OF THE WILLOW OAK

The name comes from the similarity of this leaf with that of the willow. It is also called the water oak and, in a few places the pin oak.



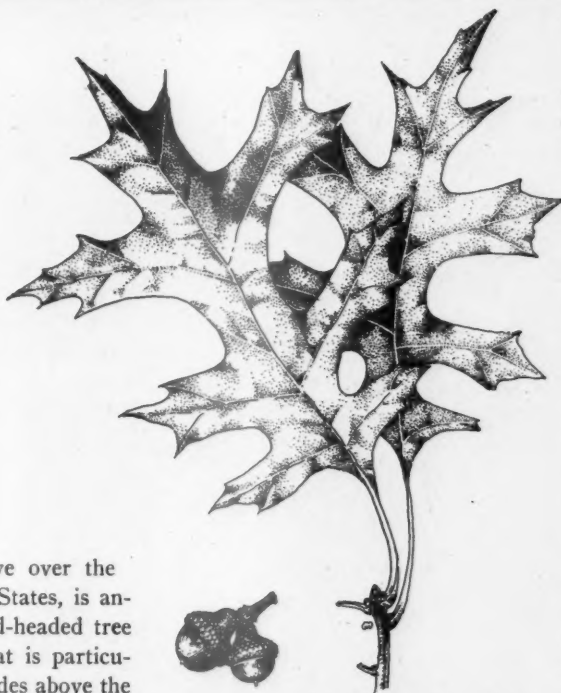
LEAVES OF THE LAUREL OAK

The leaves are larger than those of the live oak or the willow oak, and they often hold on to the tree until the new foliage starts.



LEAVES OF THE RED OAK

The leaves are large and in color a dark, shiny green and the lobes have prickles on the ends. They turn a dark red in autumn.

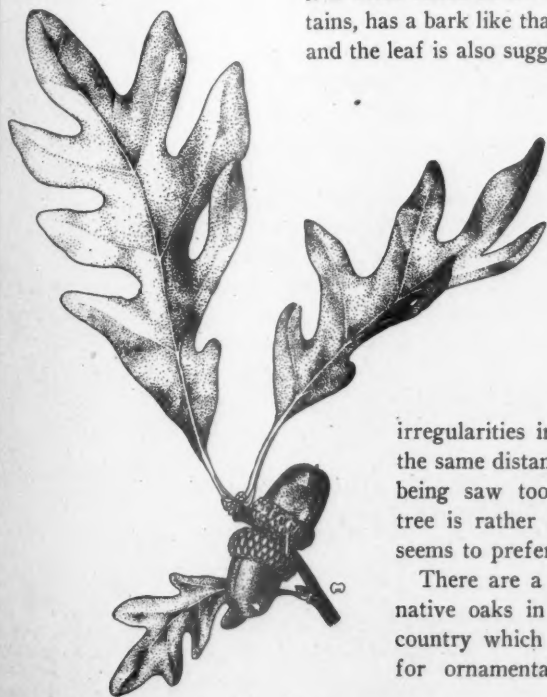


LEAVES OF THE PIN OAK

The leaves are more finely cut than the red oak and are smaller. They are a brilliant red in the autumn and usually hang on all winter.

The mossy cup oak, native over the eastern half of the United States, is another large handsome round-headed tree of the white oak group that is particularly prominent on the hillsides above the rivers in the eastern half of Kansas and Nebraska. It is adapted to lawn, park, and roadside plantings and may prove useful on city streets. It should be frequently planted near the borders of the dry farming country.

The chestnut oak, or mountain oak, as it is often called in the Allegheny Mountains, has a bark like that of the chestnut, and the leaf is also suggestive of it as the



LEAVES OF THE WHITE OAK

The leaves have a tendency to hang on well into the winter, and the tree is very well known because of its wide range of territory.



LEAVES OF THE SPANISH OAK

The leaves are of much the same character as the red oak, but the tree is better known in the South than in the North.

irregularities in the margin are about the same distance apart, but instead of being saw toothed, are wavy. The tree is rather upright in growth and seems to prefer dry gravelly ridges.

There are a large number of other native oaks in different parts of the country which should be used locally for ornamental planting.

BICYCLE HIKERS URGE MEMORIAL TREE PLANTING

UNIQUE and interesting and productive of fine results in the interest of Memorial Tree Planting was the Fourth Annual Bicycle Hike given by Camp Wildwood during the past summer.



Some of the boys who took the hike and who succeeded in arousing enthusiastic interest in Memorial Tree Planting all along the line from Pittsburgh to Gettysburg.

The Camp is composed of boys of the Pittsburgh District, under the organization of F. C. Copp, who is an instructor in the City Schools of that city, and the membership of the Camp is composed of a group of manly boys who are interested in civic matters in general and who are promoters of the "See America First" movement.

Mr. Copp is a member of the Allegheny County Civic Club, Sons of the American Revolution, and the Pittsburgh Board of Trade. He has for the past four years assembled a group of hardy boys for their summer vacation—boys who take a deep interest in the things which make for a better citizenship for both the State and Nation. The trip of 1920 was made chiefly in the interest of and for the stimulation of the promotion of Memorial Tree Planting and the hand folder sent out to the prospective hikers over the trail was headed "MEMORIAL TREES."

A party of twenty-six boys between the ages of 12 and 16 years, and four men counsellors, left Pittsburgh, Pennsylvania, on Monday morning, July 12, on bicycles, bound for the State Capitol, Harrisburg, Pennsylvania, via Bedford, Chambersburg and Gettysburg, over the Lincoln Highway. The baggage of the party and the literature to be distributed was carried in an automobile driven by F. C.

Copp, accompanied by Bernard Otterman, of Wilkesburg, Pennsylvania.

At the end of the fifth day the party arrived at Gettysburg, Pennsylvania, where a two-day stop was made to visit the historic Battlefield which saw the turning point in the Civil War. While in this city the boys slept two night upon the Battlefield. As one boy said after the trip, "I slept the sleep of sleeps and snored the snore of snores, those nights up in the Allegheny Mountains under the fragrant balsams and pines." The hikers were received by Governor Sproul.

During the hike the party distributed thousands of pamphlets for the American Forestry Association, of Washington, D. C., urging the planting of memorial trees. They were received with great ovation and welcome wherever they visited and another hike for this summer is planned by Mr. Copp and his boys.

Booming Down the Canyon

*The ranger sat in his cabin door,
With eyes that were swollen and lungs that were sore,
While under his breath he bitterly swore,
For—she was booming down the canyon.*

*The tourists who left two days before
Will never visit their camp site more,
Nor gaze on the scenes they used to adore,
For—she's booming down the canyon.*

*A few little sparks by a tree, quite dead—
Just a few live coals that were "out" they said—
Now look at her going, roaring and red,
A-booming down the canyon.*

*Forty good men, husky and strong,
Worked like demons all the day long;
But she crowned and went over—again she has gone,
A-booming down the canyon.*

*How long it may burn or where it may go,
Are a couple of things that no one can know;
But it won't be all out till we get lots of snow,
For—she's booming down the canyon.*

*Hundreds of years to grow those trees;
Those same live coals and—a little breeze,
Then waste and desolation are all one sees,
As she goes booming down the canyon.*

*The ranger sat in his cabin door
With eyes that were bloodshot and lungs that were sore,
And at someone's gross carelessness bitterly swore,
For—she was booming down the canyon.*

—REMINGTON ELLIS.

FOREST PROTECTION ACTIVITIES

Reports from all sections indicate a favorable fire situation at the beginning of June. Heavy winter and spring precipitation has not yet been overcome, says *The Forest Patrolman*. Considerable slash burning in Western Oregon and Washington, Northern Idaho and Montana has been done, which is of particular importance in view of conditions last fall which rendered slash disposal practically impossible.

OREGON

The Oregon State Board of Forestry has been vigorously following out a slash cleanup campaign. Records show that 15 per cent of the fires in Oregon outside National Forests the past 10 years have resulted from slashings. Elimination of slashings therefore means reduction in loss of timber. Fourteen District Wardens went on duty April 1 and 8, others during May. The best kind of cooperation from ranchers and loggers has been secured without resorting to the compulsion which the law permits.

Work of the State and Associations in perfecting plans for the present season is progressing satisfactorily. State fire warden appointments have been issued by State Forester Elliott to 36 paid men in addition to 24 paid wholly or in part by the State while 13 voluntary wardens and 123 Forest Service employees have also been appointed, making a total of 196 now holding state appointments.

WASHINGTON

The fire season of 1921 was opened in Washington April 1st by mailing 1600 notices to dispose of dangerous fire hazards and as many "No Smoking" regulations. Ten district fire wardens were put on duty to serve additional notices and to assist in slash burning. Ten more district fire wardens went on duty about May 1st. Seventy-five patrolmen and rangers will start work the first week of June, and an equal number June 15th.

The plan of the State Forest Fire Service includes an increase in patrol of about fifty wardens and rangers, and a probable increase of twenty-five or thirty in logging camp fire wardens. It also includes the construction of about one hundred and twenty-five miles of telephone line mostly in the Olympic Storm Zone, and the establishment of three new lookouts.

Unfavorable weather at the close of the 1920 season prevented fall burning, and weather conditions this spring have not been as favorable for burning slashings.

The Olympic storm zone presents a problem which calls for a large outlay for fire protection, and may require a much larger outlay for fire control. At the same

time the organization is larger and better equipped to handle fire than it has been for any previous season.

The policy of the state forest fire service in the administration of the law prohibiting kindling fires in the forests or dangerously near forest material is set forth in a bulletin issued by F. E. Pape, State Supervisor of Forestry.

IDAHO.

In common with other states slash disposal and improvement work has occupied a large amount of the attention of the various associations.

The latter part of May weather was favorable for burning slashings.

Notice was served this year on all operators by publication in the newspapers in each county that brush must be disposed of before the fire season begins, and it is proposed to follow this up with specific notice to each individual in regard to his particular area of brush, and then when his brush is cleaned up, to give him a clearance card releasing him from any further burning on the area. It is believed that when this custom has been in effect for some time better success will result in getting brush disposal than in the past.

Forest Protection Week was a great success in Northern Idaho.

NORTHWESTERN MONTANA

The Northern Montana Forestry Association, A. E. Boorman, Secretary and Chief Fire Warden, has about completed the necessary arrangements for the prevention and handling of forest fires during the season of 1921. As in previous years the work will be carried on under a cooperative agreement with the Federal Government. This agreement provides for the number and location of patrolmen, and specifies the basis on which the cost of fires occurring within the Association boundaries are to be pro-rated. The territory affected is approximately 2,500,000 acres.

The federal government, State and associations will place in the field approximately 75 patrolmen between June 15 and July 1, depending on climatic conditions. These men will be familiar with the territory they are to patrol, and each will be equipped with the necessary tools and other equipment to detect and handle fires in their respective districts.

FOREST SERVICE (DISTRICT 6) (Oregon and Washington)

A statement given out by the U. S. Forest Service indicates that its plans for fire prevention and suppression are more complete and intensive than ever before. The number of rangers and short-term men now on duty in Oregon and Washington

is about one hundred and fifty. This force will be increased to over eight hundred July 1, besides a number of trail and road crews which will be instantly available. A period of training for a considerable number of the new men has been provided and conferences have been held on a number of Forests to exchange ideas and to acquaint the men with their responsibility and the most approved methods of prevention and suppression. Two points emphasized throughout are instant action and immediate attack on all fires and prosecution of all violators of the fire laws.

Extension of trails and telephone lines has progressed—trail mileage now being between nine and ten thousand miles and telephone mileage being about six thousand.

The Forest Service is cooperating with state authorities in the brush clean-up campaign and good results are being obtained.

An area of extreme fire hazard was created on the Olympic Peninsula by the terrific wind storm of January 29. To meet it Congress and the State of Washington each appropriated \$100,000. Road, trail and telephone crews are rushing work to the end that communication be as perfect as possible. A much-used section of the Olympic Highway traverses a portion of the windthrown area. The Governor of Washington has detailed a squad of national guardsmen to register all persons entering the storm zone by way of Fairholm at the west end of Lake Crescent. An additional preventive measure is an order by the State forbidding smoking on the area except within doors and on designated camp grounds, of which there are three.

FOREST SERVICE (DISTRICT 5) (California)

The California District of the U. S. Forest Service enters the fire season more intensively prepared than at any time in the past five years. A slight increase in the man-power will materially help to handle serious situations which have developed within the lightning zones. By the middle of August at the height of the season about 525 men will be on the job, wholly or in part in fire protection work.

It is expected that at least 800 timber land owners will cooperate with the Forest Service this year in the protection of their holdings, amounting to between three and four million acres of land. In addition to this Southern California, through State, County, and agricultural and water associations, will contribute \$80,000.00 for the protection of the watershed forests surrounding rich agricultural lands.

The Air Patrol is expected to start before the fire season commences. A change in the hunting season has been secured, delaying it 15 days so that when the peak load is reached for other fires the district will be free from this source of danger.

FOREST SERVICE, (DISTRICT 1)
(Montana, North Idaho, Western Wyoming)

About 100 temporary men are now employed on maintenance and construction work, and are available for direct protection, if needed. In addition, about fifty men, employed in North Idaho on cooperative brush disposal work, are also available as organized crews for protection.

A large amount of slash was burned during the past two months, but burning has generally been discontinued because of dry conditions.

An abundance of snow in the higher country indicates late opening of the fire season there. Northern Montana is now pretty dry at lower altitudes and fires may be expected there at any time unless rain falls soon. Three small fires have occurred in Eastern Montana, but recent rains have relieved the situation in that region.

AN AIRPLANE FIRE PATROL.

An agreement has been signed by the Forest Service of the United States Department of Agriculture and the Red River Lumber Company, in California, by which the entire fire protection of about 800,000

acres of timberland owned by the company will be undertaken by the Government. The cost will be about \$12,000 a year. This means that every precaution known to the Forest Service, both for preventing and fighting forest fire, will be used. Airplanes will patrol the timberlands and every forest ranger will be a fire warden.

The timberland included in the 800,000 acres is in what is called the Lassen National Forest, in Lassen County, California, near Susanville.*

CREDIT TO FOREST-FIRE FIGHTERS

A PLAN to give official and honorable mention to stockmen or their employees who render independent service in preventing or fighting fires on National Forests has been suggested by foresters of the United States Department of Agriculture. This plan should be similar to that now in effect in some sections where sheep herders who have been especially diligent in observing the grazing regulations are given a card commending them to other sheep raisers to whom they may apply for employment. The suggestion is made that special letters of appreciation could be sent by District Foresters of the Forest Service.

Ordinary cooperation which stockmen agree to in their applications should not be thus recognized, the specialists say, but noteworthy cases should receive official and honorable mention. Examples

of such cases taken from the Forest Service records are:

"Two herders saved the day in the case of one fire."

"Nine permittees fought fire 48 hours without recompense."

"A herder took up the patrol of a regular ranger during the latter's illness."

"One permittee came 30 miles and fought one hundred hours and said he expected no pay for his services."

NOTICE TO CAMPERS

TO CUT down fire losses and to remove campers from the lists as the chief offenders the following rules for fire prevention in California are given:

1. **MATCHES**—Be sure your match is out. Pinch it before you throw it away.

2. **TOBACCO**—Throw pipe ashes and cigar or cigarette stumps in the dust of the road and stamp or pinch out the fire before leaving them. Don't throw pipe ashes and cigar or cigarette stumps into brush, leaves, or pine needles.

3. **MAKING CAMP**—Build a small camp fire. Build it in the open, not against a tree or log or near brush. Scrape away the trash from all around it.

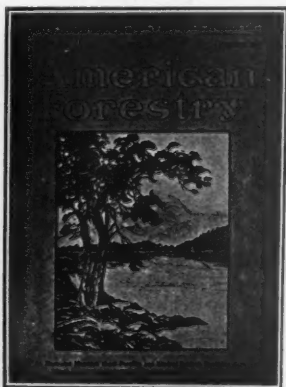
4. **LEAVING CAMP**—Never leave a campfire, even for a short time, without quenching it with water and then covering it with earth.

6. **FIGHTING FIRES**—If you find a fire, try to put it out. If you can't, get word of it to the nearest United States Forest Ranger or State Fire Warden.

BECOME A MEMBER

Any person may become a member of the American Forestry Association upon application and payment of dues.

PLANT TREES
PROTECT FORESTS
USE FORESTS



This is the only Popular National Magazine devoted to trees and forests and the use of wood.

FILL OUT THIS BLANK:—

American Forestry Association
1214 SIXTEENTH STREET N. W. WASHINGTON, D. C.

I hereby request membership in the American Forestry Association and enclose check for \$.....

INDICATE CLASS OF MEMBERSHIP

Subscribing Membership, per year.....	\$ 4.00
Contributing Membership, per year.....	10.00
Sustaining Membership, per year.....	25.00
Life Membership (no other dues).....	100.00
Annual Membership	1.00

Name.....

Street.....

City.....

BOOK REVIEWS

Landscape Gardening, by O. C. Simonds (Macmillan). Price \$6.00.

The purpose of this book, the author says, is to help make our country more beautiful. It deals with the handling and shaping of land, plant materials, arrangement of planting, methods of planting and utilization of water in the landscape picture. Plans for home grounds, farms, public thoroughfares, railway stations, parks, forest preserves, golf grounds, schools, etc., are considered.

The author has had long experience as a practising landscape artist, and the book is the result of his mature judgment. He writes with a keen and delightful appreciation of nature.

Handbook of Yosemite National Park, Compiled and edited by Ansel F. Hall (Putnam).

Much has been written of "The Valley Incomparable" and the 1100 square miles of scenic High Sierra which have been set aside as a playground for the people and this book, compiled by an official of the National Park Service, adds substantially to the Park literature. But there still remains the task of satisfying the thousands who seek definite information concerning Yosemite—its history, ethnology, botany, geology, camp and trail-craft, natural history and related subjects. As no one man can be master of all these branches of knowledge, the editor presents this collection of articles, each by an eminent authority. Because of the consistently rapid growth of travel in our National Parks, the desire to "See America First" which seems to pervade the land, the popularity of this book is confidently predicted.

Trees of Indiana, by C. C. Deam (Indiana State).

Issued in April, 1921, by the Department of Conservation of the State of Indiana, this new and revised edition is full of interest. First published in 1911, the edition of 10,000 lasted about three years. The great demand for it justified a second edition in March 1919, which was exhausted five days after publication, leaving thousands of requests for it unfilled. These came from all classes of people, says Richard Lieber, Director of the Department of Conservation, but the greatest demand was from the school teachers of the State.

"Since forestry is an integral part of agriculture which is now taught in our public schools, and since a book on the trees of the State is in demand," he continues, "the Conservation Commission has

BOOKS ON FORESTRY

AMERICAN FORESTRY will publish each month, for the benefit of those who wish books on forestry, a list of titles, authors and prices of such books. These may be ordered through the American Forestry Association, Washington, D. C. Prices are by mail or express prepaid.

FOREST VALUATION—Filbert Roth.....	\$1.50
FOREST REGULATION—Filbert Roth.....	2.00
PRACTICAL TREE REPAIR—By Elbert Peets.....	2.35
LUMBER MANUFACTURING ACCOUNTS—By Arthur F. Jones.....	2.10
FOREST VALUATION—By H. H. Chapman.....	3.10
CHEMISTRY OF PULP AND PAPER MAKING—By Edwin Sutermeister.....	6.10
CHINESE FOREST TREES AND TIMBER SUPPLY—By Norman Shaw.....	2.50
TREES, SHRUBS, VINES AND HERBACEOUS PERENNIALS—By John Kirkgaard.....	2.50
TREES AND SHRUBS—By Charles Sprague Sargent—Vols. I and II, 4 Parts to a Volume—Per Part.....	5.00
THE TRAINING OF A FORESTER—Gifford Pinchot.....	1.35
LUMBER AND ITS USES—R. S. Kellogg.....	2.15
FORESTS, WOODS AND TREES IN RELATION TO HYGIENE—By Augustine Henry.....	5.25
DEVELOPMENT OF FOREST LAW IN AMERICA—By J. P. Kinney.....	2.60
STUDIES IN FRENCH FORESTRY—By Theodore S. Woolsey.....	6.10
FOREST PHYSIOGRAPHY—By Isaiah Bowman.....	5.10
KEY TO THE TREES—Collins and Preston.....	1.50
THE FARM WOODLOT—E. G. Cheyney and J. P. Wentling.....	1.75
IDENTIFICATION OF THE ECONOMIC WOODS OF THE UNITED STATES—Samuel J. Record.....	2.60
PLANE SURVEYING—John C. Tracy.....	3.50
FOREST MENSURATION—Henry Solon Graves.....	4.00
FOREST PRODUCTS, THEIR MANUFACTURE AND USE—By Nelson Courtland Brown.....	4.15
HANDBOOK OF TIMBER PRESERVATION—Samuel M. Rowe.....	1.61
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ATTENTION, FORESTERS

AMERICAN FORESTRY will print, free of charge in this column, advertisements of foresters wanting positions, or of persons having employment to offer foresters. This privilege is also extended to foresters, lumbermen and woodsmen, discharged or about to be discharged from military service, who want positions, or of persons having employment to offer such foresters, lumbermen or woodsmen.

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TECHNICAL FORESTER with considerable experience in various phases of practical forestry and sawmill work, desires position with manufacturing concern in the East or Middle-West. Dry-kiln work, offering opportunity for development preferred. Address Box 2060, care AMERICAN FORESTRY, Washington, D. C.

YOUNG MAN, 36, single, technical trained and practical experience in forestry, tree surgery, landscaping and orchard care, wants to get in business for himself as city forester in an excellent location anywhere in the United States. Will also consider position as forester on large estate. Employed at present and best of references. Address Box 2065, care AMERICAN FORESTRY Magazine, Washington, D. C.

POSITION WANTED by young graduate forester. Six years practical field work in forestry and lumbering. Am now employed but desire change. Box 2075, care AMERICAN FORESTRY, Washington, D. C. (4-7-21)

FORESTRY GRADUATE, age 30, several years experience in forest work, including city forester, landscape development, portable logging, reforestation, knowledge and experience in farming and farm machinery. At present employed along technical and administrative lines. Will be open near future for responsible position, preferably in development and management of private forest or estate. Box 2070, care AMERICAN FORESTRY Magazine, Washington, D. C. (4-7-21)

YOUNG MAN with master's degree in forestry and who also has had experience in city forestry, tree surgery, and esthetic forest planting desires a position in any phase of forestry—logging, lumbering, forest management, or city and esthetic forestry—where marked ability will bring advancement. Would also consider a position as part time instructor in botany, the remaining time as city forester. Have taught botany while a graduate student in one of the foremost universities in America. An ex-officer of the World War. Address Box 2080, care AMERICAN FORESTRY MAGAZINE, Washington, D. C. (4-6-21)

POSITION WANTED by graduate forester, veteran 10th Engineers, at present lumber inspector Pennsylvania System, experience in French forests, Southern Pine and Northern Hardwoods. Desire position as forester for private estate or other work. North preferred. Address Box 2085, care AMERICAN FORESTRY MAGAZINE, Washington, D. C. (4-6-21)

POSITION WANTED BY FORESTER. A healthy United States citizen, 36 years old, actively engaged in logging in equatorial America, where he has done considerable practical and scientific pioneer work, now wants to return to work under more civilized and progressive conditions. Has 12 years' bush and mill experience. He works best where difficulties and problems are greatest. He is a practical enthusiast for constructive and reconstructive forestry, and desires to make connection with a body recognizing said qualities. Address Box 2090, care of American Forestry Magazine, Washington, D. C. (6-8-21).

EX-SERVICE MAN wishes employment with some Forest Construction Concern or Irrigation Company which can use a young man who is a Technical High School Graduate, and who is a Mechanical Draftsman with some slight knowledge of plane surveying. Willing to work and can do same. Address Box 2095, AMERICAN FORESTRY MAGAZINE, Washington, D. C. (6-8-21)

authorized a revised edition of the Trees of Indiana. What was formerly Bulletin No. 3 of the Division of Forestry is now published as Publication No. 13, of the Department. The reader's attention is called to a new departure in illustrations, which were made from photographic reproductions of specimens in Mr. Deam's herbarium. The photographs were taken by Mr. Harry F. Dietz of the Division of Entomology. It is believed that it will be gratefully received by the public and will stimulate an interest in forestry that should achieve practical results."

A most interesting and valuable address on the Utilization of Hardwood Waste was delivered by Mr. L. Wallis Gibbons to the Appalachian Logging Congress when in session in Cincinnati. Mr. Wallis drives home in a very convincing manner practical facts about practical values in the elimination of waste as an economic factor, touching on the work of the Forest Products Laboratory and referring to the annual fuel increment, fuel gas produced from wood, the enormous amounts involved in lumber wastes, the products of hardwood distillation, varieties, and the uses and possibilities of tar and wood waste to preserve wood.

OHIO FORESTRY LAWS

The three Silver bills, fathered by Representative Silver, of Preble county, to carry out the program of reforestation and preservation of the present forests in the Buckeye State, were signed by Gov. Harry L. Davis and will become effective about August 15, thus allowing 90 days in which to file referendum petitions. The three bills, often styled the Silver triplets, provide for an appropriation of \$50,000 for the purchase of waste land, \$10,000 for fire protection, and \$10,000 for a State nursery. This is the program of the Ohio Forestry Association. A State forester is to be named and it is believed that the present incumbent at Wooster Experiment Station, Edmund Secrest, will be appointed.

A CORRECTION

On page 272 of the April issue of AMERICAN FORESTRY, an error in the heading of an item has been corrected by C. R. Pettis, Superintendent of State Forests of New York. Trees from New York State Nurseries which reading of an announcement implied were 'availa-

POSITIONS OPEN

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ble for free distribution to the citizens of New York, are not free, advises Mr. Pettis.

PULPWOOD FROM ALASKA

The time seems to be ripe for the extensive exploitation of Alaskan pulpwood, in the opinion of the Forest Service, United States Department of Agriculture. In Department Bulletin 950, entitled Regional Development of Pulpwood Resources of the Tongass National Forest, the successful operation of pulp and paper mill in near-by British Columbia, which has practically similar timber and power resources and comparable transportation facilities, is pointed to as removing the speculative element from the proposed development.

The demand for paper, it is said, has increased to such an extent that it has become possible for well-organized and adequately financed companies to operate pulp and paper mills on an extensive scale, particularly for making newsprint. All indications point to a continuance of the demand at prices that should make possible profitable operations in Alaska. New sources are imperatively required, it is said, for the supply of raw pulpwood.

The Department of Agriculture believes that the development of the forest and water-power resources of Alaska is a practicable means of increasing the supplies of newsprint available for the United States and of eventually lessening the paper shortage now so acute. The National Forests of Alaska probably contain, it is estimated, 100,000,000 cords of timber suitable for the manufacture of newsprint and other grades of paper. Under careful management these forests can produce 2,000,000 cords of pulpwood annually for all time, or enough to manufacture one-third of the pulp products now consumed in the United States.

BUYING PULPWOOD BY WEIGHT

WORK done at the Forest Products Laboratory, in co-operation with the Newsprint Service Bureau, to obtain data on buying and using pulpwood on the weight basis indicates that such procedure would be very desirable. If such a thing proves possible the uncertainty as to the actual solid cubical content of the present cord would be eliminated and allowing for the percentage rot in wood by scaling would partly be done away with. Buying pulpwood on the weight basis has the further desirable features that the industry could establish a sensible and rational cost accounting system and it will also be a decided stimulus to a more thorough technical control of all of the mill operations. The disadvantages, however, are that the seller of wood will have to be educated to this method of purchase, and at the present time since there is an actual shortage of pulpwood the mills will have to purchase according to the method desired.



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STATE NEWS

CALIFORNIA

PAUL G. REDINGTON, District Forester, says: Because of the large number of forest fires, traceable directly to the carelessness of tourists, campers, hunters and fishermen, which have occurred within the National Forests during the last few years, written permits will be required before camp fires may be built in California. Last year over one and one-half million people visited the National Forests in California, and the travel into the Forests has become so great that every possible precaution must be taken to prevent forest fires from starting. All campers and tourists are urged to get a written permit before building any fires and should be very careful to see that all fires are thoroughly out before they are left.

Camp fire permits will be required in the Angeles, Cleveland, Eldorado, Klamath, Lassen, Plumas, Santa Barbara, Shasta, Tahoe and Trinity National Forests. They are issued free of charge by all Forest Officers in the field and by numerous merchants and fire agents on and near the National Forests.

Assembly Bill No. 769 provides that each teacher in any public school of the State of California shall devote a reasonable time in each month during which such school is in session to the instruction of the pupils in a course of study and fire prevention comprising ways and means of preventing loss and damage to lives and property through preventable fires.

District Forester Redington says: "We believe that this is a very valuable preventative measure and should greatly help reduce man-caused fires in the woods, as well as in the homes."

Last year in California fires destroyed timber, grass and grain worth \$983,562 and burned over approximately 415,275 acres. This bill will go far to provide a remedy for the needless destruction of timber and other resources. Another and very simple remedy may be summed up in the phrase "Help Protect The Forests—Be Careful With Fire." This done, seventy-five per cent of our forestry problems will be solved.

NEW YORK.

THE sale of trees to private individuals from the New York State Nurseries during the spring planting season of 1921 shows a decided increase in the demand for trees for reforestation purposes over the last four years. The sales for the spring planting alone this year almost equal the total distribution for last year.

The advantages to be derived from the reforestation of cut-over woodlots and land not well suited to agricultural purposes are appealing to more and more farmers every year, and since 1908 when the State began supplying trees to individuals at cost, more than thirty million trees or, allowing 1000 trees to the acre, thirty thousand acres—have been set out in private plantations.

The records of the State Conservation Commission show that from 1901 to 1920 inclusive, 60,372,684 trees were planted in New York State and that this number was about equally divided between private individuals and the State, private plantations totalling 29,033,805, and State plantations 31,408,879.

The largest shipments were Scotch pine, 1,320,325 trees, and Norway spruce, 1,135,600. Other varieties were: white pine, red pine, white spruce, white cedar, European larch, black locust, white ash and Carolina poplar.

NORTH CAROLINA

THE Geological and Economic Survey of North Carolina, following the President's proclamation of Forest Protection Week, prepared a bulletin addressed to the boys and girls of the State urging their cooperation and support. Written in a manner sure to interest them, the bulletin contains pertinent facts and valuable information relative to our forests and their protection and perpetuation.

The Survey distributed twenty-five thousand copies of this bulletin, to which was appended a copy of the President's Forest Protection Week proclamation, to the schools, boy scout and similar organizations throughout the State, as well as to the press. Such splendid publicity work in North Carolina will undoubtedly serve to create and stimulate the public interest in forest conservation.

PENNSYLVANIA

THE State Forest Commission has taken action to establish about fifteen State Parks, or recreation grounds in different sections of Pennsylvania. Governor Sproul recently approved a law authorizing the Commission to set aside within the State Forests unusual or historical groves of trees especially worthy of permanent preservation. The law provides that the Parks are to be made accessible and convenient for public use, and they are to be dedicated in perpetuity to the people of the State for their recreation and enjoyment.

Colonel Henry W. Shoemaker, a member of the Forest Commission, has suggested a list of fifteen historical and noteworthy

groves of big trees which he considers suitable for Parks in various parts of the State. The Forest Commission has agreed that an advisory committee shall be appointed to act on the selection of the proposed recreational areas, and other sites which may be considered later.

FREE education in forestry is offered the young men of Pennsylvania by the State Department of Forestry. Gifford Pinchot, the Chief Forester, announces that competitive examinations are to be held at Harrisburg for free scholarships to the State Forest Academy, at Mont Alto.

The ten highest men will be appointed to the Forest Academy where they will begin their study of forestry next September. A further test of six week's work will be given on one of the State Forests.

Young men between the ages of 18 and 25, who have completed a four years' high school course and who have had experience in farming, lumbering, surveying and other forms of outdoor work, are particularly desired. The scholarships provide free tuition, board, room and laundry. Upon successful completion of the course, which includes thorough and practical training, a degree in forestry will be awarded.

WEST VIRGINIA.

On May 10, 1921, the Lookout Station on Lick Knob, was completed and it is now in operation. This work has been accomplished largely through the active and earnest cooperation of public spirited citizens of the State with the forest officers, in their efforts to further forest protection. E. N. Wriston is in charge of the Lookout Station under the direction of C. W. Harding, Forest Fire Warden.

ANOTHER ENDORSEMENT FOR THE SNELL BILL

MISS HENRIETTE ORD JONES, chairman of Tree Planting of the New York Bird and Tree Club, reports the passage by the Club of a resolution strongly endorsing the Snell Bill, H. R. 15327, and urging its favorable consideration by Congress because of its vital economic importance in insuring continuous forest production.

POWER COMPANY REPLANTS

THE Northern New York Utilities, Inc., through its president, Mr. John M. Carlisle, reports keen interest in the campaign of the American Forestry Association for reforestation and advises that the Company is now engaged in the reforesting of the lands around its power plants. They have already set out 600,000 trees and intend to plant about 200,000 each year in the future until approximately 2,000,000 trees have been planted. Mr. Carlisle is also interesting local county and club officials in this program. Work of this sort cannot be too highly commended.

SOUTHERN FORESTRY CONGRESS TO MEET IN ATLANTA

THE third meeting of the Southern Forestry Congress will be held at the Piedmont Hotel, Atlanta, Georgia, Wednesday and Friday, July 20-22. It is planned to make this the largest and most important forestry meeting ever held in the South.

One day of the Atlanta meeting will be devoted to a consideration of a forestry policy for the Southern Appalachian, South Atlantic, and Gulf States. In connection with this it is proposed to hold a conference of Southern Governors. President Harding, Secretary of Agriculture Wallace, and several United States Senators are being invited to be present and contribute their ideas on this most important subject.

The protection of forests from fire, classification and taxation of lands, reforestation of cut over lands, National and State forests are other topics which will receive consideration. Experts on all these subjects are being invited to speak and all delegates will be free to join in discussions.

The officers of the Congress are: President, Henry E. Hardtner, Urania, Louisiana; Chairman Executive Committee, Colonel Joseph Hyde Pratt, Chapel Hill, North Carolina; Secretary J. S. Holmes, Chapel Hill, North Carolina; Assistant Secretary, R. D. Forbes, Superintendent of Forestry, New Orleans, Louisiana; Chairman Committee for State of Georgia, B. H. Stone, Blairsville, Georgia. Further information can be secured by writing the Secretary.

100,000 ACRE JERSEY FOREST PUT TO WORK

DEVELOPMENT of the forest resources of the Wharton Estate, consisting of 100,000 acres of woodland in Burlington, Atlantic, and Camden Counties, New Jersey, has begun by the appointment of James O. Hazard as Forester of the Wharton properties in South Jersey. Mr. Hazard, who is a graduate of the Yale Forest School, and who was formerly in the service of the State as Assistant Forester, has recently established a residence in Hammonton. He has begun at once the work of protecting the woodlands from fire and developing the forest resources, so that this tract, now consisting largely of young and frequently burned forest, may be returned to productivity. Due to the repeated fires there are, today, only five sawmills cutting timber from this tract. These mills have an average cut per day of about 3,000 to 4,000 board feet. Had fire been kept out of the forest for the past fifty years and the cut regulated to the amount of the annual growth, the tract would now be capable of supporting continuously, 16 sawmills cutting an average of 10,000 board feet per day or 3,000,-



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000 board feet per year, each. This affords a striking example of a valuable industry lost to the present through the forest fire menace. The practice of forestry will in time return this valuable industry to the locality.

ARMY AIRPLANES CRUISE OLYMPIC BLOW DOWN

AIRPLANES, with Army officers as pilots and men from the Forest Service, United States Department of Agriculture, as observers, recently completed an air "cruise" of the Olympic Peninsula forests in the State of Washington devastated by the tremendous tornado of January 29. From data and photographs collected during these flights, forestry experts estimate that 6¾ billion board feet of timber was blown down by the storm, and to-day forms one of the greatest fire traps in the history of the country.

The storm-swept area extends along the west side of the Olympic Peninsula from Clallam Bay on the north, southward for some 90 miles to Grays Harbor, and inland from the coast a distance of from 20 to 30 miles. The storm was the most severe that has visited the Pacific coast, so far as evidence is available, an estimated velocity of 150 miles per hour being reported.

The amount of wind-thrown timber on State, Indian reservation, and private

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lands is estimated at approximately 6 billion feet, and on National Forest land at 750 million feet. District Forester George H. Cecil, of Portland, Oregon, who was an interested spectator from the "hurricane deck" of one of the planes, reports that the wind-thrown areas are very spotty—in some places practically all the trees being down, while in others but little damage resulted from the wind. Only a small amount of the down timber, it is said, can be salvaged, because of the lack of transportation facilities.

Should fire gain headway in this devastated region, forestry experts say that the most stupendous conflagration ever known in America would result. Special appropriations have been passed by the Federal and State Governments to meet this emergency, and strict measures will be taken to prevent fires starting from human agencies.

FORESTRY CLUB ORGANIZED

The Penobscot Forestry club was organized at the Bangor Chamber of Commerce, 25 foresters of Bangor and vicinity being present and participating in the organization. D. A. Crocker of the Eastern Manufacturing Company, was elected president, R. E. Pineo of Milo, timberland dealer, was elected first vice president, H. B. Morse of the Orono Pulp & Paper Company, second vice president, Shirley Rogers of the Great Northern Paper Company,

third vice president; and P. T. Coolidge, of Bangor, forestry engineer, secretary and treasurer.

The object of the club shall be the promotion of social intercourse and the study of forestry and its allied activities.

The committee which is responsible for the organization plans consisted of Prof. J. M. Briscoe, George T. Carlisle, Jr., K. McR. Clark, P. T. Coolidge, D. A. Crocker and H. B. Morse.

NEW YORK LUMBER CUT DOUBLED IN VALUE.

New York cut 411,000,000 feet of lumber in 1920, valued at \$20,000,000, or nearly double the value of the 1918 cut. This remarkable increase was due primarily to the great post-war increase in lumber prices, which reached its peak in March, 1920, together with the fact that the quantity of lumber sawed increased 25 per cent in two years. The number of mills cutting 50,000 feet or more increased from 1,023 to 1,206 in the same period. The average valuation f. o. b. mill of the lumber cut was \$48 per M feet—the highest point on record.

These figures are based upon a preliminary statement of the Forest Service United States Department of Agriculture, cooperating with the Bureau of the Census, United States Department of Commerce, and with the State of New York, in the census of lumber production in 1920.

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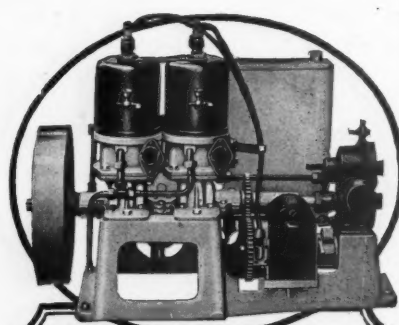
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FOREST PROTECTION WEEK WIDELY OBSERVED

NATION-WIDE observance was given Forest Protection Week, which began Sunday, May 22. The governors of 14 States issued proclamations impressing the people with the importance of using every possible precaution to prevent fire throughout the year, not only in forests, but in every other place endangering the safety of human life and property. These 14 States are Arizona, California, Colorado, Idaho, Illinois, Maine, Massachusetts, Mississippi, New Mexico, South Dakota, Utah, Virginia, Washington, Wisconsin.

In addition to this help the governors of seven States; Minnesota, New York, North Dakota, Oregon, Pennsylvania, Texas, and Montana, prepared special statements urging the general observation of Forest Protection Week, while eight governors declared themselves favorable to the best possible form of forest protection, although issuing no formal proclamation. These were Arkansas, Connecticut, Kentucky, Louisiana, Missouri, New Hampshire, Rhode Island, and South Carolina. Other governors, known to be friendly to the protection and conservation of forests, doubtless have issued proclamations or statements which have not been received in Washington.

Probably no previous effort inaugurated by the Forest Service has received such prompt and cheerful support from every department of business. The Chamber of Commerce of the United States; the International Kiwanis Clubs; the American Automobile Association; National Board of Fire Underwriters; International Association of Rotary Clubs; National Fire Protection Association; the General Federation of Women's Clubs in virtually every State in the Union; the Daughters of the American Revolution, all have sent out letters, or specially prepared circulars, drawing attention to the special purpose of the week. State Foresters in many States have started one form or another of publicity to induce talk and create continued interest in the one big subject of the week.

The Boy Scouts of America, considered by the Forest Service to be one of its most efficient allies in preventing forest fires, issued a special forest protection number of the monthly publication, "Scouting," for May, and Forester W. B. Greeley, and Chief Scout Executive James E. West of New York, sent 10,500 letters to scoutmasters and scout executives every where in America. The Post Office Department ran 22 fire prevention cancellation dies in many of the principal post-offices throughout the Nation so that every letter sent from those offices carried the message.

In Washington, D. C., the D. A. R. observed the occasion by planting trees. The

American Forestry Association held a special Forest Protection Week demonstration in Rock Creek Park. The National Board of Fire Underwriters sent out 160,000 copies of its official publication, *Safeguarding America Against Fire*, to every city and town. In this issue it is shown that in the last five years the forest fires in 45 States have cost the country \$85,715,747 for timber burned on nearly 56½ million acres. At least 80 per cent of these fires were caused by human agencies and were, therefore, preventable.

The Red Plague, a special statement issued last week by the Forest Service, says: "Three-fifths of the original timber supply in the United States is gone. There is now consumed annually more than 51 billion board feet of material of saw-timber size, and nearly 5 billion feet is destroyed by fire, insects or other agencies. Our depleted forests are growing less than one-quarter of this total amount. Not only are remaining virgin forests being cut heavily, but we are using up the second growth and small material on which depends our future supply. In all, the requirements of our population are close to 300 board feet per capita. The answer to the forestry problem is not to use less wood, but to grow more—to put our idle acres to work producing trees. The crux of the problem lies in preventing forest fires."

NEW YORK'S LIBERTY POLE RE-STORED

NEW YORK is to get back its Liberty Pole. Flag Day, Tuesday June 14, in City Hall Park, a great flagstaff was erected on the exact site of the old Liberty Pole which stood there in 1766 and was cut down by the British when they occupied the city after the American army evacuated New York.

In the procession appeared delegations from the New York Historical Society, Sons of the Revolution, Society of the Cincinnati, Society of Tammany, the American Legion and representatives of twenty-seven other historical and patriotic societies in the city.

It was a colorful procession. Tammany's sachems appeared in Indian costume, as they did upon their first appearance. Flags of all our wars were carried. Senator Willis of Ohio was the orator of the day, and President Olyphant presented the pole to Mayor Hylan, while the children from the public schools and the City History Club sang and Bishop Manning pronounced the benediction.

When the original Liberty Pole was erected it should be understood that the City Hall was then at the corner of Wall and Nassau streets. What is now called City Hall Park was a large space of practically unoccupied land belonging to the city and known as the Common.

There were five Liberty Poles in all, but

each was erected within a short distance of the others and all on the Common. The first was erected on the evening of June 4, 1766, on the twenty-eighth birthday of King George III, and it proved to be the curtain raiser for a series of dramatic events which finally culminated in the War for Independence.

Upon the passage of the stamp act the colonies were aflame with indignation. When news reached London of the really serious situation created in America, the unfortunate act was repealed, and it was to celebrate this repeal that the first Liberty Pole was erected.

A great day of public rejoicing therefore was planned for the King's birthday. Upon that occasion a huge barbecue was arranged. Two whole oxen were roasted in the park. Beer, bread and other articles of food and drink were served in unlimited quantities. Cannon boomed from warships in the harbor and from the fort. The day passed in exuberant exhibition of good feeling on the part of the people toward the crown. In the evening the royal Governor and prominent citizens held a banquet at Burn's coffee house, at which the greatest cordiality prevailed. Forty-one toasts were drunk. Everything possible was done to make the occasion a day long to be remembered in the annals of New York, and, to make assurance doubly sure, the citizens erected a huge pole in the park at the close of the day's festivities and ran up a flag on which was inscribed "The King, Pitt and Liberty."

This was the first Liberty Pole and the public appearance of the Sons of Liberty.

The present pole is as nearly as possible an exact duplicate of the original and stands in precisely the same spot. In one important particular, however, there is a difference. The original mast was of pine from the State of Maine. In the new pole, to typify the unity of the nation from coast to coast, the mainmast is a stick of Douglas fir, the gift of the West Coast Lumbermen's Association, while the topmast comes from the East Coast, the original State of Maine, the gift of Frank C. Deering, of Saco, Maine.

SAVES THE REDWOODS

Gov. W. D. Stephens, of California, has signed the redwood preservation bill, which was passed by the State legislature. The Save the Redwoods League, which has four thousand members, including citizens of California and a number of prominent persons in other parts of the United States had been working for several years toward this end. The law provides funds for saving many of the redwood trees along the State highway in Humboldt County. It will not interfere much with lumber operations, but will preserve fine specimens of this species for future generations.

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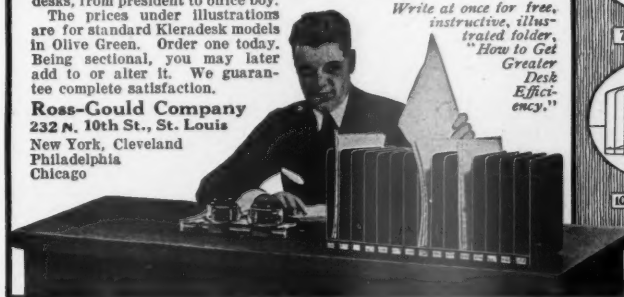
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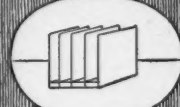
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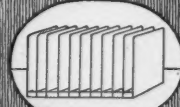
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LINCOLN MEMORIAL TREES

It is a fitting tribute to the memory of Abraham Lincoln that the Lincoln Memorial grounds, at Washington, D. C., will be planted with trees in memory of individual soldiers, sailors or marines who lost their lives in the World War. This beautiful memorial, surrounded by living trees that will perpetuate the heroic deeds of the men of a generation half a century later than Lincoln interests every American.

Several hundred trees will be planted along the driveways and on the grounds leading to the Memorial Building. The grading will be completed enough by early fall to provide sites for the first of these trees. Trees will then be planted as the grading progresses. Each individual tree will be furnished and planted by the family of an individual soldier, sailor or marine who was killed in action or died from wounds received in action. Each tree will be labeled with a brass tag, and the name and service unit of the soldier, sailor or marine for whom it is planted will be recorded in the office of the custodian of the Lincoln Memorial Building. The contract for planting these trees has been let to the landscape firm of Lewis and Valentine, who will make uniform selections. The individual wishing to plant a tree in these grounds will make application to Custodian, Lincoln Memorial Building, Washington, D. C. In turn, a certificate is returned to applicant. This certificate will then be sent to Messrs. Lewis and Valentine, who will select the tree to be planted.

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Write for announcement giving full information.

FOREST GUIDE DEPT.

(Continued From Page 457)

quilt, also how to use the tools.

In cutting down the trees they were taught to handle an ax properly. In building the fence, they were not only taught the use of tools, but also to create something worth while out of forest waste, besides greatly beautifying the camp site, by the removal of unsightly trees, and all the time while improving the camp they were passing their tests.

A class was taught how to draw maps. Do you know how to mount weeds, leaves, flowers, grasses and insects? Take stiff cardboard for the back, cut to size you need. Next, place a layer of cotton of same size over the cardboard, then place your specimen on the cotton. Next, place a sheet of celluloid, such as is used in auto tops, and which can be purchased where auto tops are made, over all and bind edges together with passe partout binder.

This will make either a valuable troop exhibit or one for your own collection.

* * * *

I CAN see you now, sitting around your evening camp-fire, telling the others what new something you found during the day, and what treasure hunt you would go on tomorrow, and just as you begin to feel drowsy and talk slows up, some small boy, who had stretched out on the flat of his back, all of a sudden, as the campfire flares up, points up and asks you in a hushed voice, "What's that?" You gaze in the direction the finger points, and there you see, circling this way and that, a beautiful Luna moth. As you gaze and wish that you might have it for your own collection, the bugler, in low, mellow tones, begins to sound taps, and while rising to retire to your tent, I can hear you softly singing to the tune the bugler is playing:

"Day is done, gone the sun

From the lakes, from the hills, from the sky.

All is well, safely rest,

God is nigh."

As you lie on your cot or bed of Balsam boughs, you wonder what tomorrow will have in store for you, and it occurs to you that you were going to collect specimens of wood and leaves of different trees, to build an exhibit for your troop meeting room, like the one you read about in the May number of *The American Forestry Magazine*, that you had not started, and turning over on your elbow, you tell Bill or John that you will have to get busy on the wood collection, and it may surprise you to learn that Bill already has ten specimens, all carefully packed and labeled.

In the August number I will tell you how trees travel and what story a walnut tree told me. There will also be an article on moths and how to mount them.

PLEASANT THINGS TAKEN FROM LETTERS TO THE EDITOR

"I have read the article by Dr. Shufeldt on antelope in the December issue of *AMERICAN FORESTRY* and like it almost the best of anything of his I have ever read."

DAN B. STARKEY.

"I wish to thank most heartily the sender, whoever he may be, for the most interesting and best illustrated number of the *AMERICAN FORESTRY Magazine*, which I have ever seen (November, 1920)."

H. T. ELES.

"I have read the articles by Dr. Shufeldt on fish and foxes with much interest and instruction to myself, as well as the other articles in *AMERICAN FORESTRY*, especially the one on bees."

DR. H. J. BOLDT.

"I have read the article by Doctor Shufeldt on Nature Photography with much interest and I am now sending the magazine to Miss Caroline Stackpole, who is in charge of our animal nature study."

M. A. BIGELOW.

"I wish to express my appreciation of your wonderful magazine."

MRS. W. M. CLUTE.

"I certainly agree with you that this is one of the most important years in forestry that this country has ever had. Apart from my interest in forestry, I want to add a word regarding my appreciation of the journal of our Association. I have but one magazine that I take more interest in reading, and it is a toss up between the two. I cannot afford to miss a single issue."

CLEMENT W. BAKER.

"Congratulations on your work. I am greatly interested."

J. THOMPSON HENRY.

"A copy of the April number of *AMERICAN FORESTRY* came to my desk today and I got a great deal of pleasure in going through it. The graphic features and the editorial pages balance up excellently. You are to be congratulated on getting out such an excellent publication."

JOYCE O'HARA.

"The April issue is a peach!"

ARTHUR H. CARHART.

"My sincerest wishes for the extension of the grandly useful *AMERICAN FORESTRY*."

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